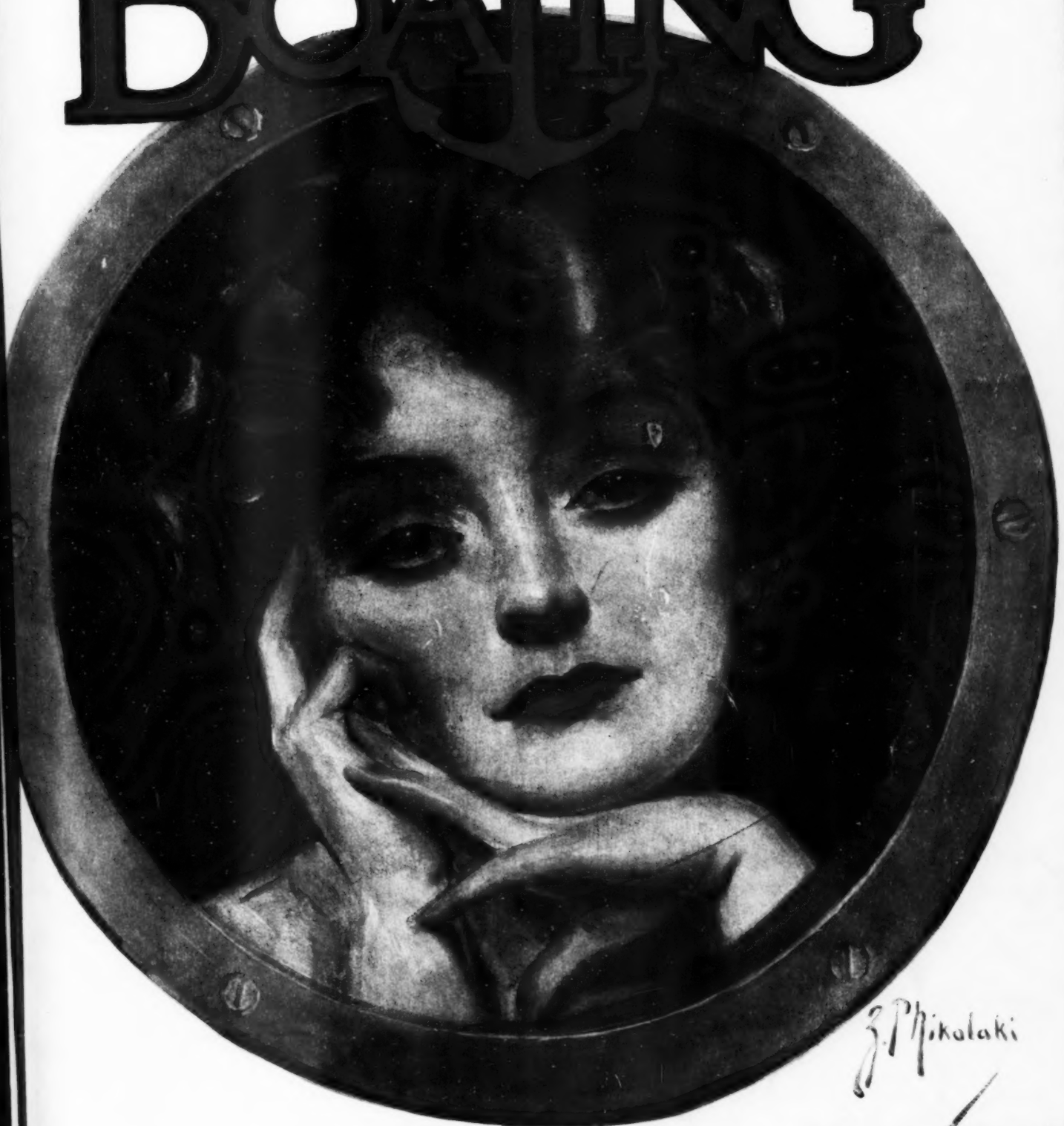
SEPT. 1914

MOTOR BOATING

15 CENTS



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In This Number

Why Standardized ELCO Models have achieved success

Elco MOTOR BOATS

BECAUSE experts ungrudgingly admit that the 45 foot ELCO cruiser is the *best* "one-man" cruiser ever offered, and that its accommodations are the equal of any 60 foot cruiser afloat.

Because the public concedes that ELCO Expresses stand alone as the most beautiful type of high-speed launch.

Because the originality of "ELCO features" always appeal to you. The graceful lines of the hull; the workmanship and finish; the details of starting and control all combine to make ELCO models distinctive in beauty and seaworthiness—and in economy of operation as well.

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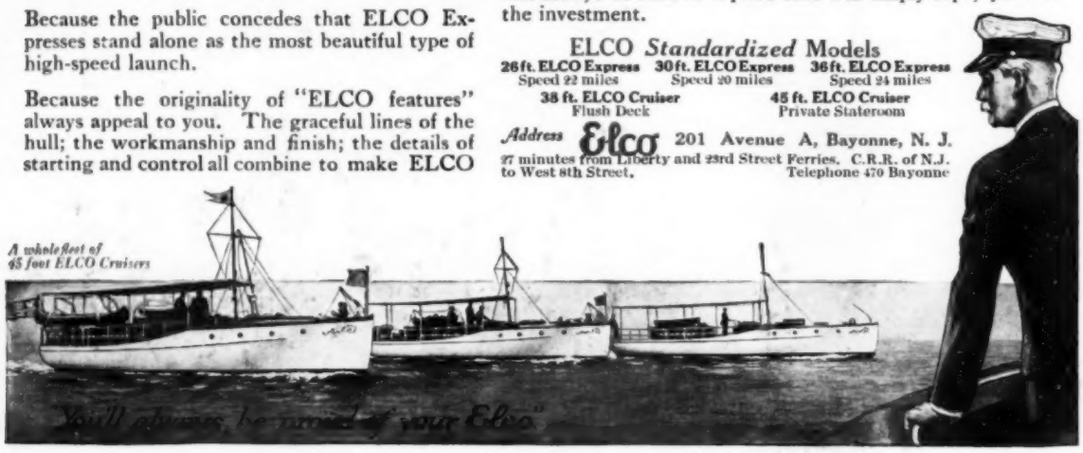

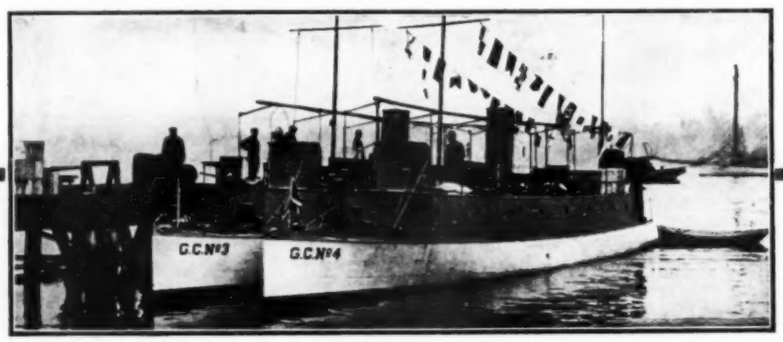

San Domingo Revenue Cutters

65 H. P. Standard Engines

THE LAST REPORT OF THE DOMINICAN CUSTOMS RECEIVERSHIP SAYS OF THE FOUR STANDARD POWERED REVENUE CUTTERS:

"Arriving in Dominican waters in December, 1906, they have been practically in continuous service since January 11, 1907, during which time, they have not only performed remarkable service, in the Receivership work, but have been called upon in emergencies by the Dominican Government."

The report shows a total of over 27,000 miles traveled during 1913. The 4th Annual Report says:

"An average of 25,000 aggregate miles has been traveled annually along the coast and no accident has befallen a passenger."

Another STANDARD powered boat has been added this year to the Dominican fleet.

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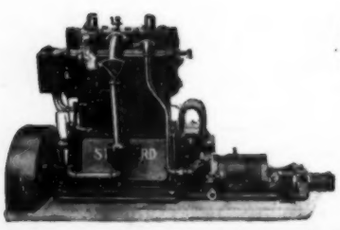
THE STANDARD ENGINE

IS BUILT FOR A GREAT MANY YEARS OF HARD SERVICE



Select your engine by a process of elimination. How many are working over two years; how many over twice two; and how many over eight years?
Invest in a STANDARD Engine now and begin to see your profits accumulate.

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Back of the STANDARD guarantee is the

Standard Motor Construction Company

178 Whiton St., Jersey City, N. J.

Contents

Trial trip of Lundin motor life boat.

September, 1914

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THE NATIONAL MAGAZINE OF MOTOR BOATING

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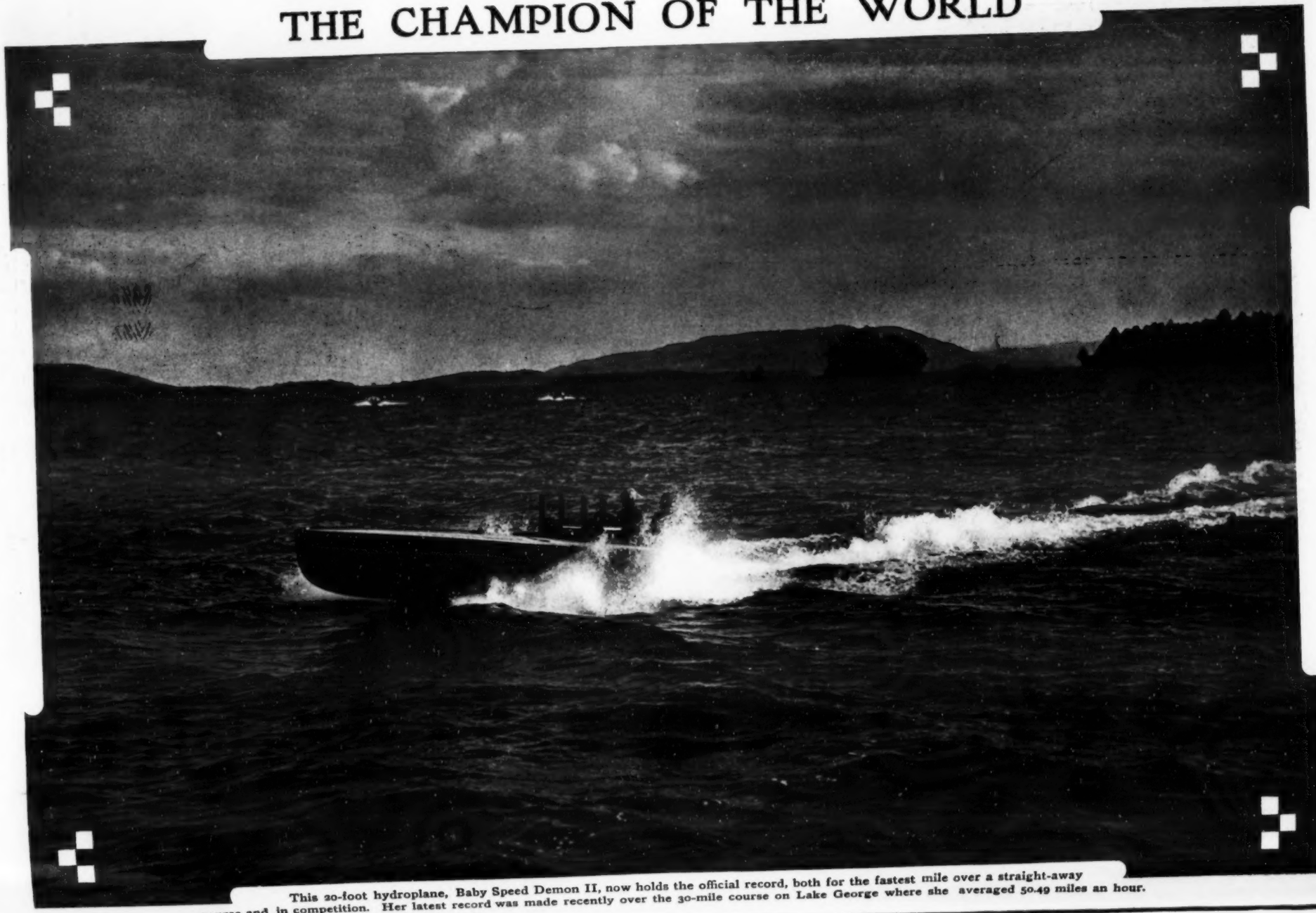
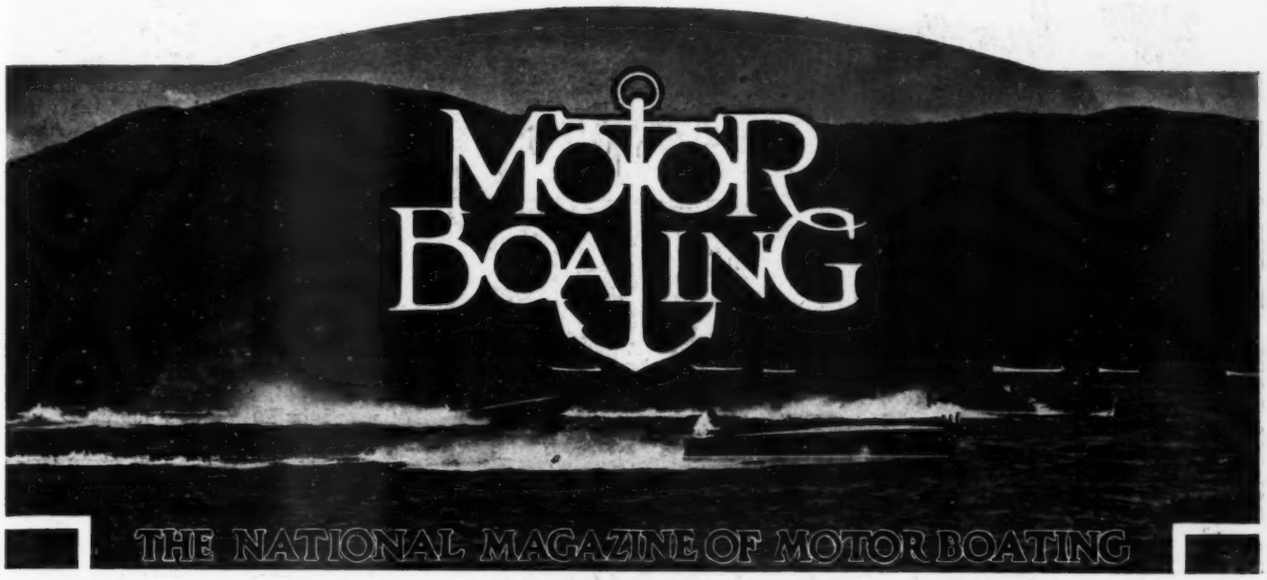
THE CHAMPION OF THE WORLD



This 20-foot hydroplane, Baby Speed Demon II, now holds the official record, both for the fastest mile over a straight-away course and in competition. Her latest record was made recently over the 30-mile course on Lake George where she averaged 50.49 miles an hour.



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Our Greatest Motor Boat Races.

The Series in Competition for the A. P. B. A. Gold Challenge Cup on Lake George. World's Records Twice Broken and Fifty Miles an Hour in Competition Finally Reached.

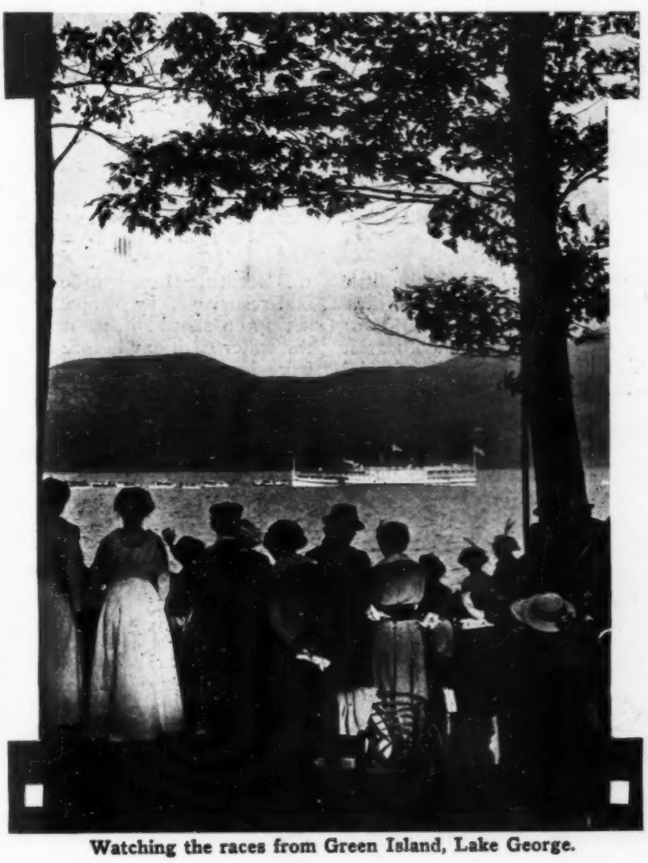
By C. F. Chapman

FOR the first time since 1904 the Gold Challenge Cup has left the waters of upper New York State. For nine consecutive years the trophy was held by various clubs at the Thousand Islands and last year by the Lake George Regatta Association, it having been won in 1913, as everyone remembers, by the consistent performances of the old reliable, Ankle Deep. Now it goes to the Motor Boat Club of America, a club virtually having no club house or anchorage, although New York City is generally supposed to be its home. Where next year's races will be held for this most important trophy of the country no one dares prophesy, but it behooves this club if it has one breath left, to pull itself together and uphold the honor which has been thrust upon it.

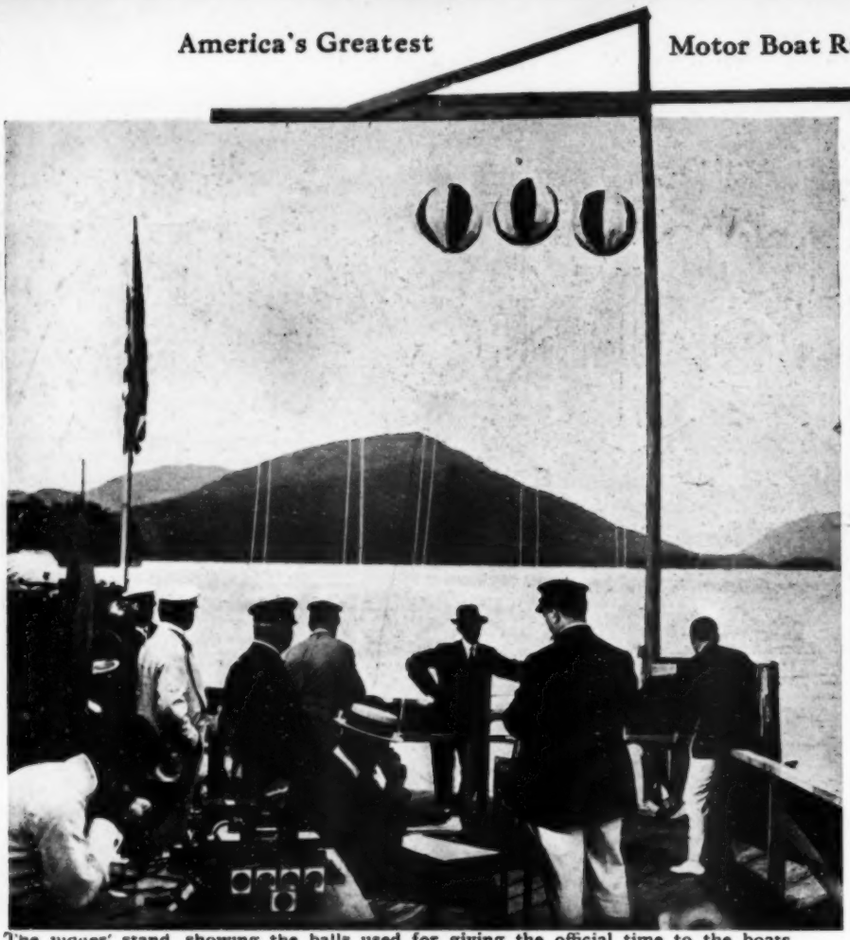
To Mrs. Commodore Blackton goes great honor for winning this highly prized trophy against the finest field of motor boats which have ever been together, in the cleanest and best conducted series of events which the world has ever known. To the manufacturers of the two makes of motors with which all the craft were powered, is due in no small measure the success of motor boat racing in this country at present. Rapid has been the development in these high-speed racing engines within one short year since the last race for the Gold Cup, as was well demonstrated by the outclassing of the boat which had everything her own way in 1913. The motor in the winning boat stood up like a soldier throughout the entire races, which totaled over 100 statute-miles, but consumed only 125 minutes, 27 seconds, racing time. Not only did the motors in the other winning boats behave perfectly, but those in boats which came in at later intervals reported no trouble of consequence and it was no dishonor to be defeated in the Gold Cup races of 1914. Those troubles which were reported were not the fault of the main power plants, but, in general, could be traced to some minor auxiliary such as too small a propeller shaft, a defective chain for driving the magneto, a poor gear, etc.

While many pages might be written in praise of the power plants in the boats, and the many good features in the developments of their designs pointed out, yet as much could not be said in regard to the hulls of the boats. It is true that those of the first several boats to finish were well near perfect, and taken as a whole were a considerable advancement over the year previous, yet in other hulls there was the same old tendency to slight strength, working on the assumption, probably, that things would be strong enough to last until the finish line was reached and why worry after that. It was just this policy that made a big failure out of at least one of the boats, and perhaps did not give the power plants a real show in some of the other craft. It is too much to require that an eight or twelve-cylinder motor besides being obliged to propel the boat at an almost mile-a-minute rate should have to help hold the hull together besides. No motor can do its best under such conditions, and the sooner that some designers realize that some of the faults which are attributed to engine design, are really up to them themselves on account of turning out a poorly designed and weak hull, then the sooner will we see the phrase, "did not finish" eliminated from the score card.

That "weight" is not the whole story in hydroplane design was more strongly emphasized than ever before. The first three boats to finish in the first race were heavy hulls, in fact several hundred pounds heavier than some of their defeated rivals and with less power, too, yet



Watching the races from Green Island, Lake George.



The judges' stand, showing the balls used for giving the official time to the boats, and the wireless apparatus used in timing.

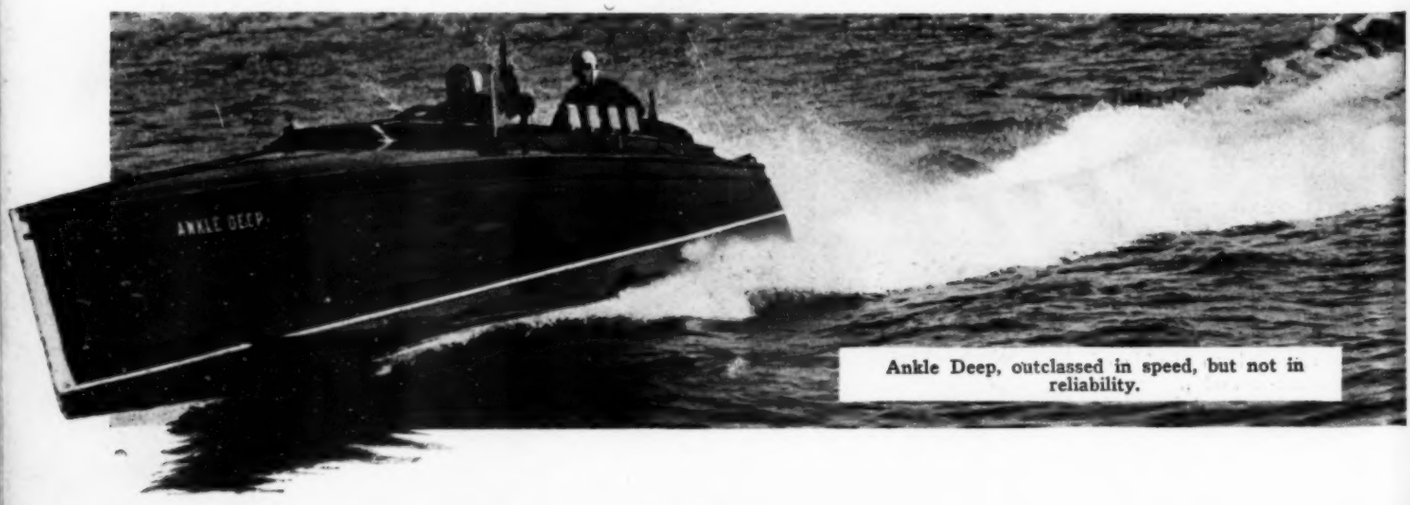
they did not win on any kind of a fluke whatsoever.

The hulls of Baby Reliance V, Baby Speed Demon II and Buffalo Enquirer were as near identical as it was possible for human hands to make them. Furthermore, each was equipped with the same make and power of motor, yet how different they were in speed. Almost a mile an hour between them, when each was being driven to the limit—which goes to show that it is the little things which count in the design of a hydroplane. A little difference in the depth or position of the step, the position of the rudder perhaps, or a seam that was not as smooth as it should be, might have caused this difference in speed. Again, it might have been the condition of the motor, its stiffness or the amount of original compression, which is not a constant quantity in different motors, which caused the winning or losing of this big event. Also, the trueness of the propeller may be responsible for it, for one does not have to use his imagination to a very great extent to appreciate the enormous thrusts and strains which the propeller blades must undergo in a case like this. One blade, a little too soft or a little too hard might change its shape or pitch slightly, which would have a tendency to affect the whole working mechanism and perhaps throw it out of balance. It further shows that the whole question of hull design is more one of experiment and "cut and try" than anything else and the designer who contents himself with the lines of his boat on the drawing board and nothing more is doomed to go down to defeat.

Contrary to the usual order of things, at motor boat races all the arrangements were made well in advance and the events were ably handled by a regatta committee which knew its business from the start. The wheels had been set in motion months previous, and when the time came for the starting signal on the first day everything was in readiness and every one connected with the regatta was in his place. The boats were ready, too, and there was no waiting an hour or more for a belated entrant to show up. In fact, all the arrangements were of the highest order and the officials of the Lake George Regatta Association, especially the chairman of its regatta committee, Capt. Albert L. Judson, are to be congratulated on the great success of the entire race meet. Every one of his able assistants did the work expected of him from the beginning.

That the course was accurate there can be no doubt, for it had been surveyed and resurveyed by competent engineers, and numerous ranges set up on shore so that it was possible to check the marks in the water each day before the start of the races, to see if they were in their proper positions. The course was elliptical in shape with three buoys, ¼ mile apart at each of the turns, six

Baby Reliance V, Commodore Blackton's latest speed boat which won the first race at a speed of 50.41 miles an hour.



Ankle Deep, outclassed in speed, but not in reliability.

Buffalo Enquirer, a new 20-footer, with a 180 h.p. Sterling motor, which took second place in the series.

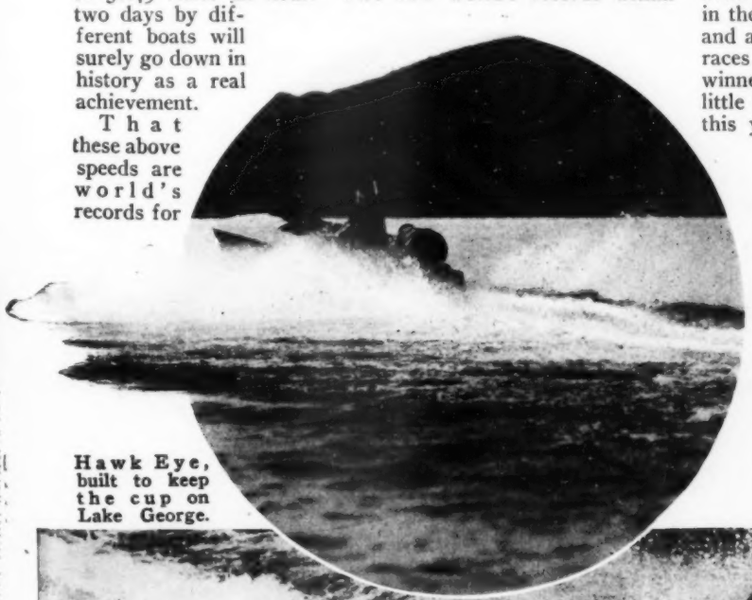
nautical miles around with the start and finish line at the center point of a three-mile straightaway. A more ideal course could not be wished for and it was with a feeling of satisfaction that so much care had been taken with these details that the official speed of Baby Reliance V was figured out at the finish of the first day's races and found to be 50.41 statute miles an hour, and later, when it was found that Baby Speed Demon II in the second race had bettered her rival's time for the thirty nautical mile course by four seconds and thus established a new record of 50.49 miles an hour. Two new world's records within two days by different boats will surely go down in history as a real achievement.

That these above speeds are world's records for boats in competition can hardly be disputed with justice. This being a sanctioned event by the American Power Boat Association, the only real governing body in this country, whose racing commission had active supervision over the laying out of the course, the timing and other arrangements, gives official recognition to these figures.

There are some persons, of course, who will immediately claim that this speed was bettered in England last year in competition for the Harmsworth trophy, but as there was, even at the time when these latter races were held, a doubt in the minds of many as to correctness of the English course and as no official governing body had given sanction to these races or supervised the arrangements, the speed made by the winner, Maple Leaf IV, can hardly be accepted as official. A little comparison with the speed which Ankle Deep made in this year's Gold Cup races and that credited to her when abroad last fall will bring out this point very clearly.

Ankle Deep probably never ran better than she did in either the first or the second day's races at Lake George—every one will agree to that. She was as consistent in her performance as a railway train; in fact, one enthusiast attempted to forecast, after timing her over the first two rounds on the first day, at what time she would finish. But he failed utterly, for this three-year-old boat finished four seconds before he had calculated she would. Deducting the 38 seconds which Ankle Deep was late in getting over the line on the first day, we find her elapsed time for each of the five rounds of six nautical miles each to be as follows: 8:45, 8:45, 8:45, 8:46, 8:43, or a total of 43 minutes, 44 seconds. Again on the second day we find her right on the schedule time of 8:45, 8:45, 8:45, 8:44, 8:44, or one second faster for

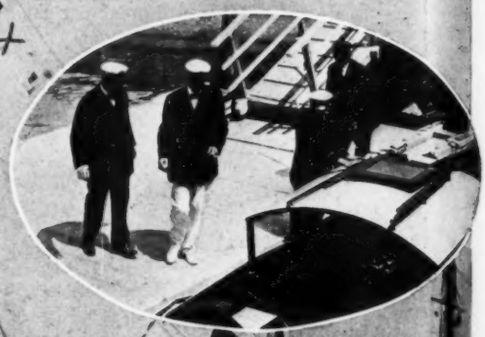
(*Continued on page 47*)



Hawk Eye, built to keep the cup on Lake George.

Peter Pan VI, reliable, seaworthy and in trials very fast, but which met with an accident before the races.

Motor Boats on the New York

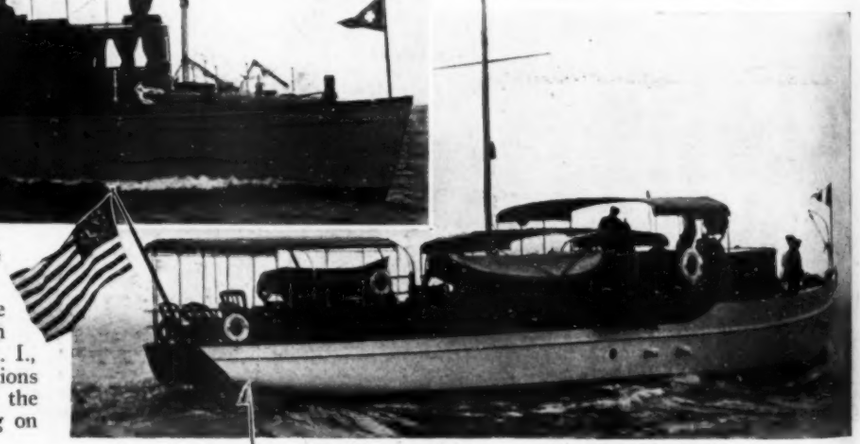


Upper Insert—Motor tender of the yacht Christina, landing party at Glen Cove.

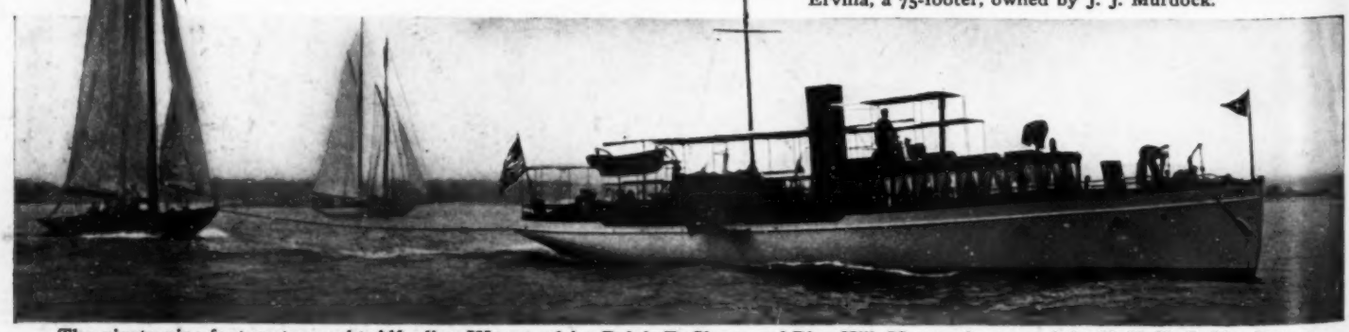
Schooner Sea Fox, flag ship of the New York Yacht Club flying the signal, F. A. J. K. (Captains report aboard flag ship at 4:30 p. m.). Insert shows Ex-Commodore Arthur Curtis James getting aboard his motor tender.

Butterfly, one of the outsiders which went along on the cruise also.

On the annual cruise of the New York Yacht Club which has just ended at Newport, R. I., motor boats of many descriptions formed no small part. Of the power fleet which went along on the cruise this year a large proportion of the yachts were motor propelled. Even the steam yachts which not long ago relied entirely on naphtha launches for their tenders have now replaced these with fast motor tenders.



Ervilla, a 75-footer, owned by J. J. Murdock.



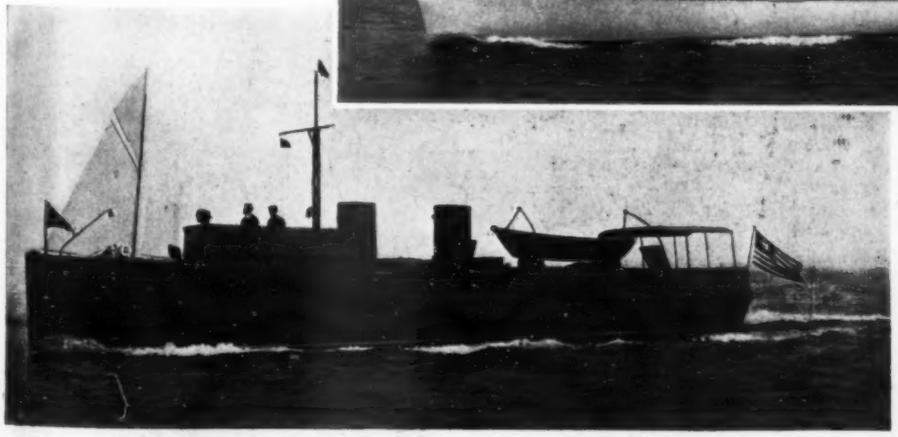
The ninety-nine-foot motor yacht Alfredine IV, owned by Ralph E. Slaven, of Blue Hill, Me., towing one of the N. Y. Y. C. fifty footers.

Yacht Club Cruise

Navigator, the ninety-foot twin screw motor yacht, owned by Clarkson Cowl, of New York City.

Nepahwin, a seventy-foot twin screw motor yacht, owned by Edward W. Hooker, of Hartford, Conn.

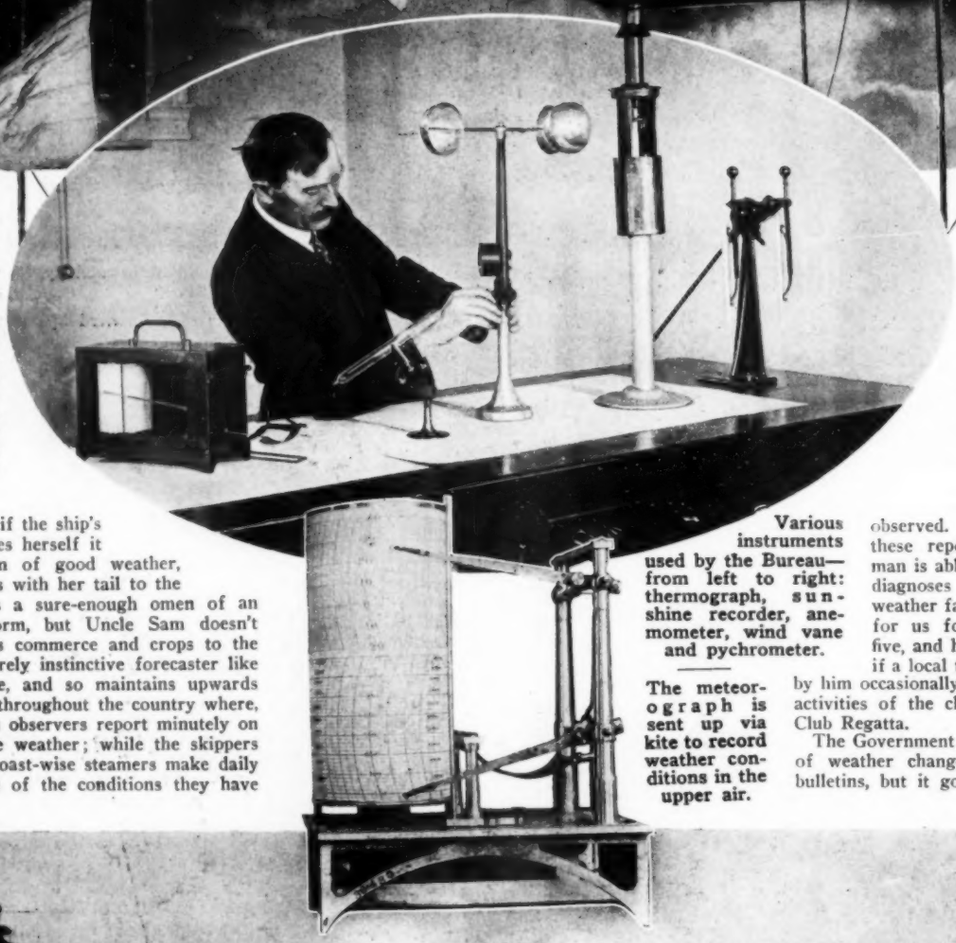
Those few strictly sailing yachts which are left and not to be classed as auxiliaries invariably carried motor craft on davits and on many occasions needed their services.



Ensign, Mr. Irving E. Raymond's new sixty-eight-foot motor yacht.

Resolute's motor tender, towing her into New London harbor after the finish of a day's race on the cruise.

WEATHER and the Motor Boatman



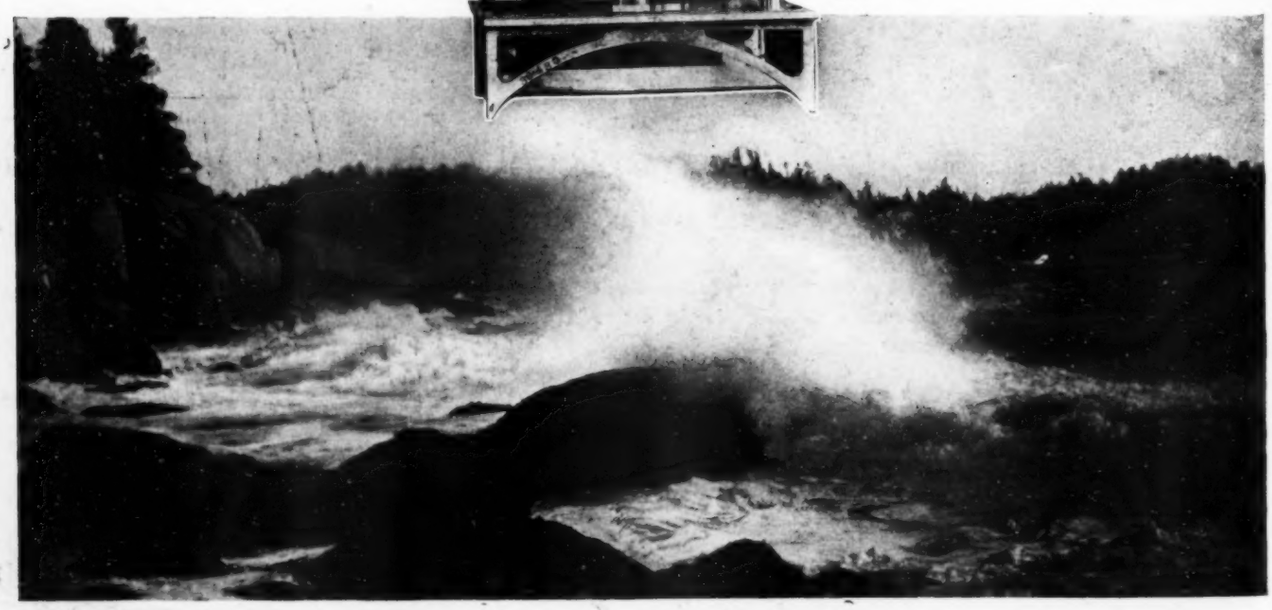
Above are several of the flag signals used by the Weather Bureau to warn shipping of approaching storms. On the extreme left is the NW signal—a white pennant above a red flag with black center; next it is the SE signal—a red pennant below the square flag; to the right are the small craft warning display—a red pennant, and the hurricane warning—two red flags with black centers.

Various instruments used by the Bureau—from left to right: thermograph, sunshine recorder, anemometer, wind vane and pychrometer.

The meteorograph is sent up via kite to record weather conditions in the upper air.

OF course, if the ship's cat washes herself it is a sign of good weather, while if she sits with her tail to the galley fire it is a sure-enough omen of an approaching storm, but Uncle Sam doesn't like to trust his commerce and crops to the actions of a purely instinctive forecaster like the ship's feline, and so maintains upwards of 200 stations throughout the country where, twice a day, his observers report minutely on the state of the weather; while the skippers of some sixty coast-wise steamers make daily wireless reports of the conditions they have observed. From a digest of these reports the weather man is able to make correct diagnoses of what the weather factory has in store for us four times out of five, and he can't be blamed if a local thunderstorm slips by him occasionally and dampens the activities of the closing hours of a Club Regatta.

The Government warns the farmer of weather changes by telegraphic bulletins, but it goes a step further



This cove on the Maine coast makes a good picture but a bad forced anchorage. The motor boatman who is guided by Weather Bureau reports runs much less risk of getting into trouble than the skipper who plans his cruises on the basis that he's "a good swimmer, anyway."

in giving aid to all American shipping by flying storm warning signals which all who sail within sight of the display stations may read. And there is one flag especially dedicated to the small motor boat which because of its smallness might experience difficulty in a breeze which would not deter an ocean liner from leaving port. This warning signal is a red pennant which, when flown alone indicates that moderately strong winds are expected.

The other storm warnings although not primarily intended for small craft, apply to them still more forcibly and they should be memorized by every motor boatman who has his boat in unsheltered or only semi-protected waters. A square flag with a black center indicates that a storm of marked violence is expected within 12 or 24 hours, a red or a white pennant displayed with the flag shows from what quadrant of the compass the wind is expected and the position of the pennant in relation to the flag shows from what quarter the wind is expected. So, a white pennant flown above the flag announces the coming of a storm from the northwest quadrant and the white pennant below the flag gives warning of a southwesterly storm. A red pennant flown above or below the square flag warns of an easterly storm from the northerly or the southerly quadrants respectively. By night a red light indicates easterly winds from either quadrant and a white light below the red forebodes westerly winds. Two red flags with black centers, flown one above the other indicate, in the words of the Weather Bureau, "the expected approach of a tropical hurricane, or one of those extremely severe and dangerous storms which occasionally move across the Lakes and northern Atlantic coast." If you are so unfortunate as to see these flags flown, drop over both anchors—or three, if you have them—and prepare for a novel experience.

As a still further aid to those vessels which are equipped with wireless, the Weather Bureau has recently come to an agreement with the U. S. Naval Radio Service whereby daily weather reports are sent out to traffic on the Great Lakes. The messages are divided into two parts, the first consisting of code letters describing the weather conditions observed at various points on the Great Lakes at 8 A. M., and the second consisting of a special forecast of weather conditions which will probably be met with on the Lakes. This wireless service supplements that of a similar nature instituted on the North Atlantic Ocean and the Gulf Coast last year.

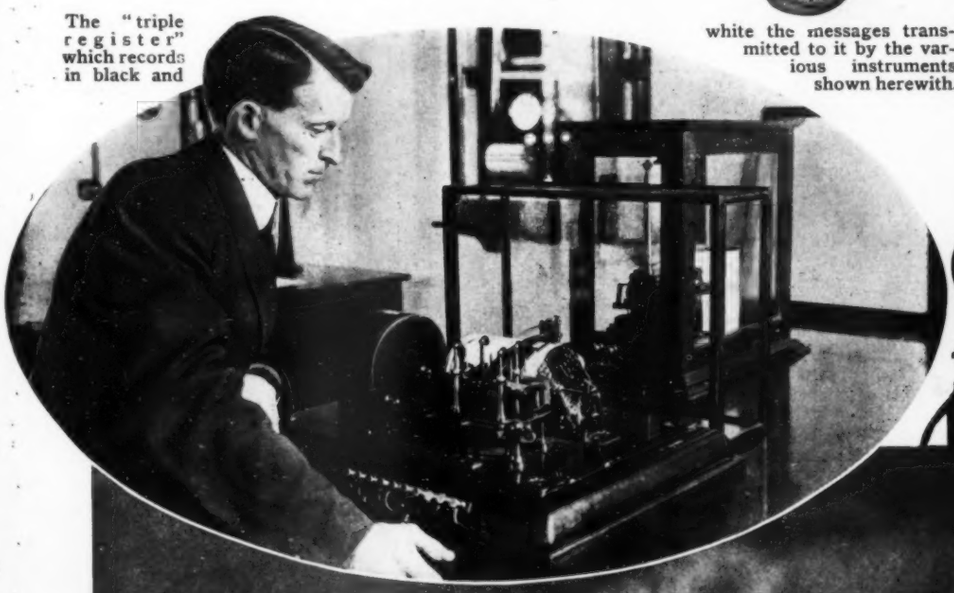
Three types of rain gauges used by the Government, the one in the foreground being of the tipping bucket type.

The Weather Bureau also sends out daily reports in the form of charts showing the actual state of the weather at the various observing stations throughout the country, and these may be obtained on request to the Bureau by any private party who will guarantee to post the charts in a prominent place where they may be seen by the people of his community. Before distributing these maps the Forecast Official sums up the wind, rain and temperature conditions of the whole country and then has printed beneath the chart what his judgment tells him will be the local conditions for the next 24 hours. With the wealth of meteorological information these charts contain, they are well worth the study of every motor boatman.

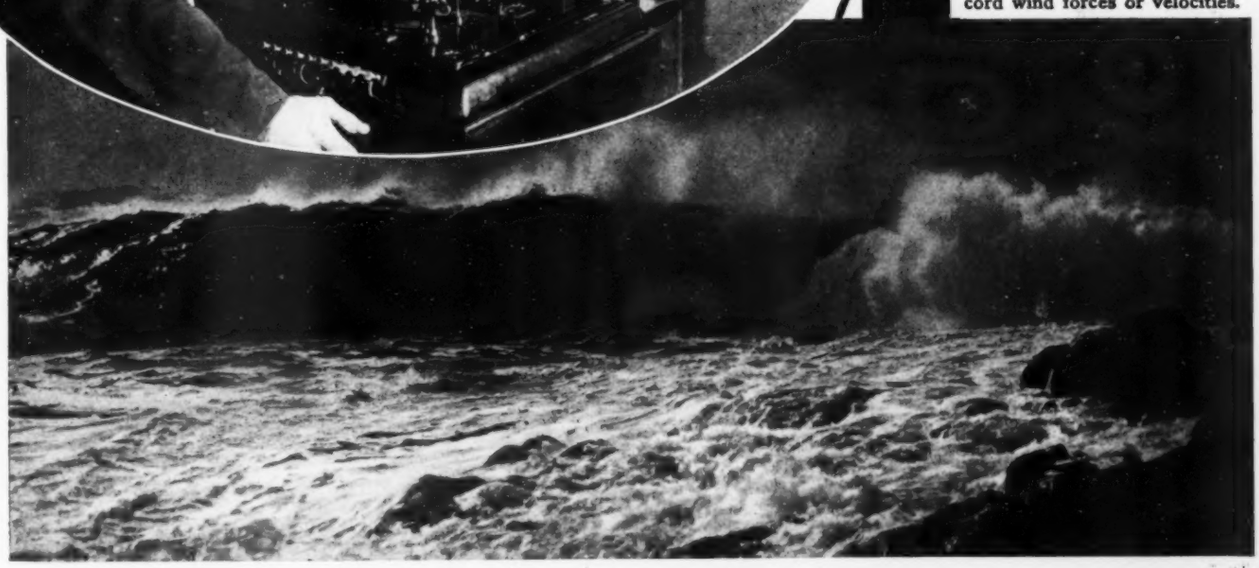
The instruments used by the Bureau in its important

(*Continued on page 50*)

The anemometer, used to record wind forces or velocities.



The "triple register" which records in black and white the messages transmitted to it by the various instruments shown herewith.



A cruise started in the face of storm warnings sometimes winds up in a smother of foam and splintered planking.—The Weather Bureau measures the state of the sea by Beaufort's scale, using numbers from 0 (calm) to 9 (tremendous). The sea as shown here is about at 5 (rather rough).

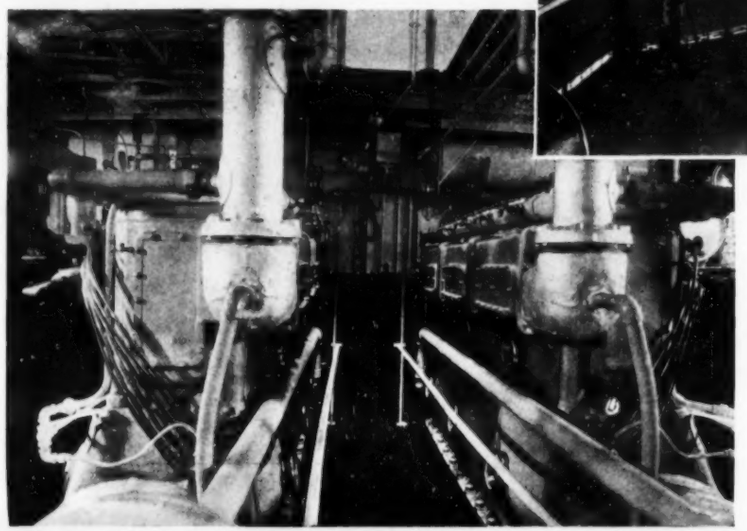
The Biggest Motor Yacht in the World

Photographs by N. L. Stebbins.

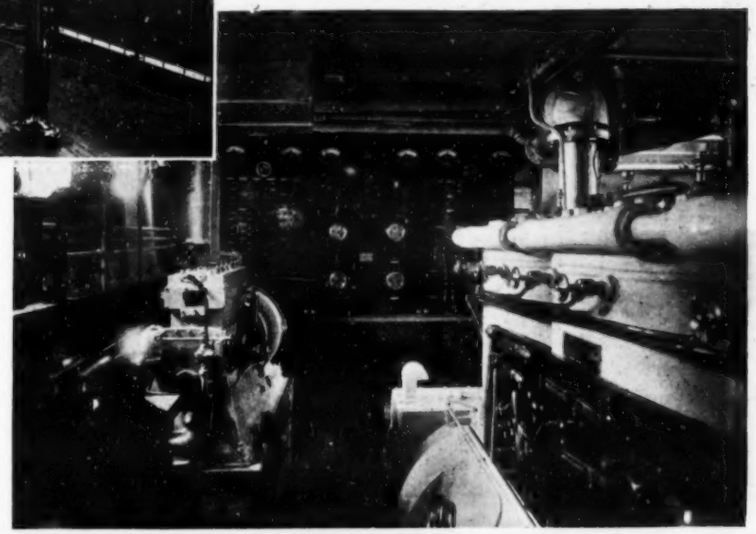
Florence, owned by Mr. Ludwig T. Petersen, of Youngstown, O., enjoys the distinction of being the largest yacht yet built to operate on gasoline engines.

She is a twin-screw vessel resembling the typical steam yacht of similar dimensions, being schooner rigged and fitted with a stack.

The roomy bridge deck is fitted with a yacht cannon in addition to the regular equipment. The chart table is on the port side.



The power plant consists of two 6-cylinder 200 h.p. Winton engines, and two 5 k.w. lighting sets.



The port side of the engine-room looking forward, showing switchboard, generating set, tools, etc.

A TWIN-SCREW vessel which has the distinction of being the largest motor yacht yet built has recently been completed by the Geo. F. Lawley & Son Corporation, of Neponset, Mass., after designs by Gielow & Orr, of New York City, for Mr. Ludwig T. Petersen, of Youngstown, Ohio. Florence has a length overall of 154 feet, a waterline length of 127 feet 6 inches, a moulded beam of 20 feet and a draft of 7 feet when fully loaded. Her dimensions have been determined with a view to securing a thoroughly seagoing yacht, and at the same time obtaining a good boat for ordi-

sions, being schooner rigged, and fitted with a stack which is used for

opposite on the port side 2 stateroom, [illegible]

The power plant consists of two 6-cylinder 200 h.p. Winton engines, and two 5 k.w. lighting sets.

Her dimensions have been determined with a view to securing a thoroughly

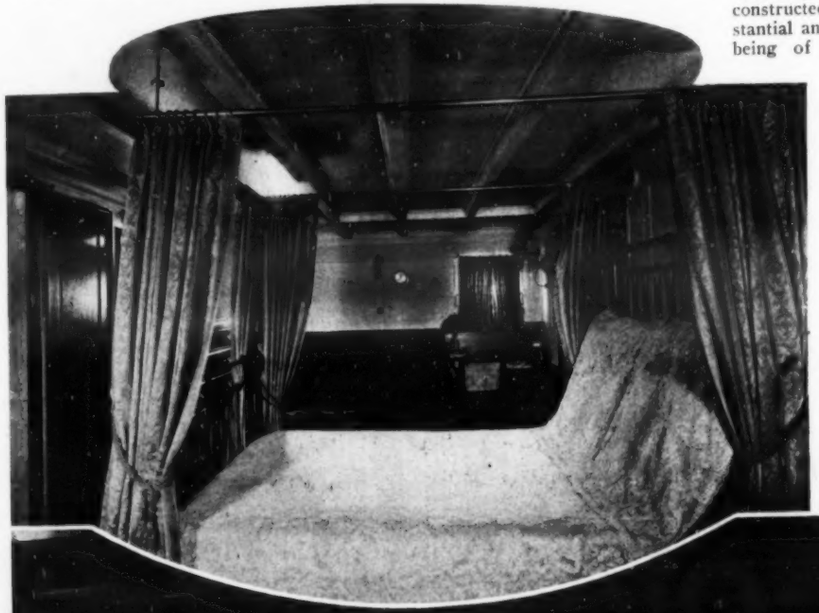
The port side of the engine-room looking forward, showing ... ating set, tools, etc.

seagoing yacht, and at the same time obtaining a good boat for ordinary summer yachting.

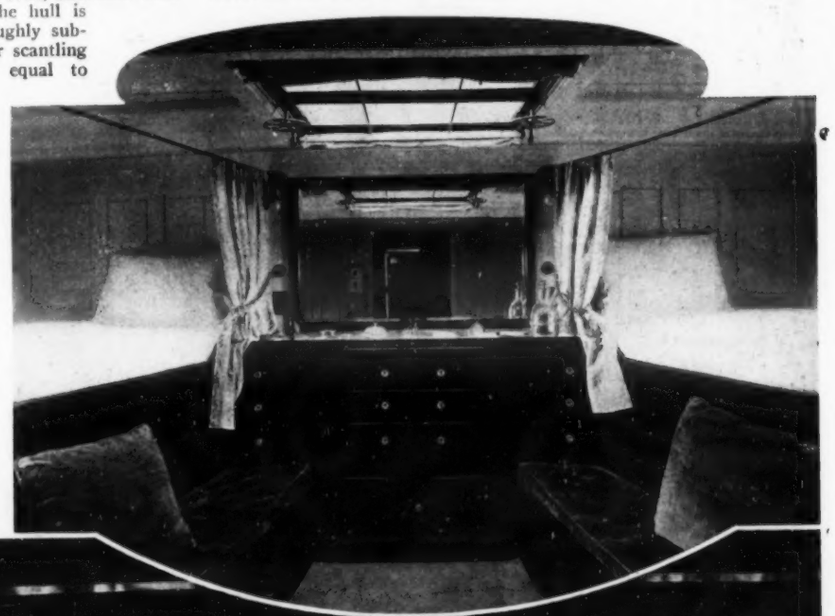
In appearance she resembles the typical steam yacht of similar dimen-

sions, being schooner rigged, and fitted with a stack which is used for obtaining a more perfect ventilation of the galley and engine-room. She has a clipper stem and yacht counter, with an even, unbroken sheer extending from stem to taffrail. The hull is constructed of mild steel in a thoroughly substantial and workmanlike manner, her scantling being of ample dimensions, fully equal to Lloyd's requirements. Her main deck is of teak, as is also her deck house, which is 78 feet 6 inches in length and extending to within 42 inches of the sides of the vessel.

In the forward end of the deck house is a chart room. Aft of this comes the galley, then a pantry on the starboard side, and opposite on the port side a stateroom, lavatory, etc., for two maids. After this is the dining saloon, 16 feet 6 inches in length, then a music room, 12 feet 6 inches long, and aft of this a lavatory on the starboard



The owner's stateroom and the after stateroom. All the living quarters are well lighted and ventilated, and are fitted with wardrobes, bureau, lavatory and bath.



The music room in the deckhouse, looking forward into the dining saloon.

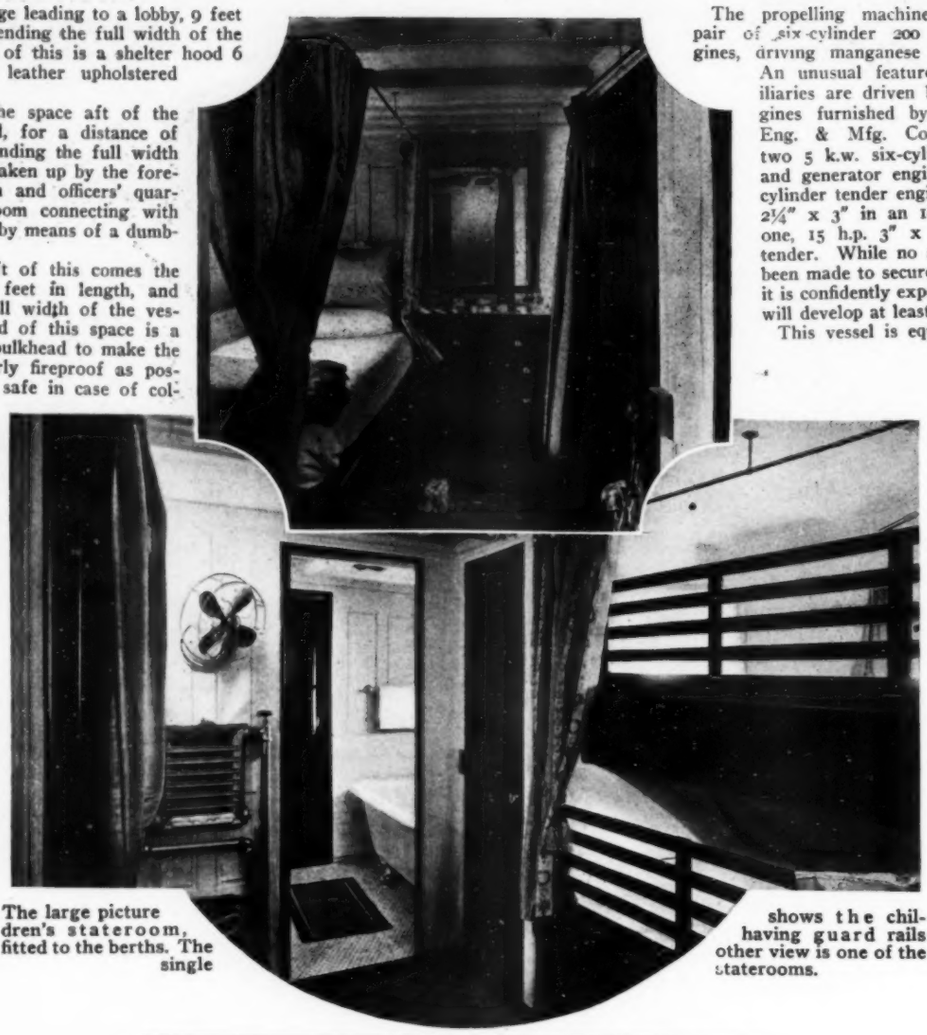
After end of music room. All woodwork in the deckhouse is of teak.

side, with a passage leading to a lobby, 9 feet in length and extending the full width of the deck house. Aft of this is a shelter hood 6 feet deep, with leather upholstered sofa, etc.

Below decks the space aft of the collision bulkhead, for a distance of 37 feet, and extending the full width of the vessel, is taken up by the forecastle, mess-room and officers' quarters, the mess-room connecting with the pantry above by means of a dumbwaiter.

Immediately aft of this comes the engine-room, 17 feet in length, and extending the full width of the vessel. At each end of this space is a steel watertight bulkhead to make the structure as nearly fireproof as possible, as well as safe in case of collision. Aft of the engine-room are three steel enclosed, watertight compartments, each containing a tank for holding liquid fuel. The three have a total capacity of 6,000 gallons.

The living quarters for the owner and guests occupy a space of 52 feet in length, and extending the full width of the vessel. They consist of six staterooms and four bathrooms, arranged so that each stateroom connects with a bath.



The large picture shows the children's stateroom, fitted to the berths. The other view is one of the single staterooms.

The propelling machinery consists of a pair of six-cylinder 200 h.p. Winton engines, driving manganese bronze propellers. An unusual feature is that all auxiliaries are driven by six-cylinder engines furnished by the Winton Gas Eng. & Mfg. Co. and consist of two 5 k.w. six-cylinder lighting sets and generator engines; also two six-cylinder tender engines — one, 7½ h.p. 2¼" x 3" in an 18-foot launch, and one, 15 h.p. 3" x 4" in the 25-foot tender. While no special attempt has been made to secure a high speed, still it is confidently expected that the yacht will develop at least 15 miles per hour.

This vessel is equipped with an ice machine and refrigerating installation which will make it possible to undertake more extended cruises than is feasible where cold storage is dependent on natural ice supply.

The yacht is equipped with four boats, consisting of two power launches, a dinghy and a metallic life boat.

The fact that the comforts of the juvenile members have not been overlooked is evidenced by the provision of a children's stateroom which is furnished with berths fitted with guard rails.

Ruita, a 32-Foot Runabout.

ONE of the handsomest runabouts of the season is Ruita, a 32-footer, designed and built by the Niagara Motor Boat Company, of North Tonawanda, N. Y., for Mr. P. A. Rockefeller, of New York. The decks and interior of Ruita are finished in mahogany stained to a very rich dark tone. The sheer and fenderwale are outlined with half oval brass, which serve as a protection when landing and also add greatly to the appearance of the boat.

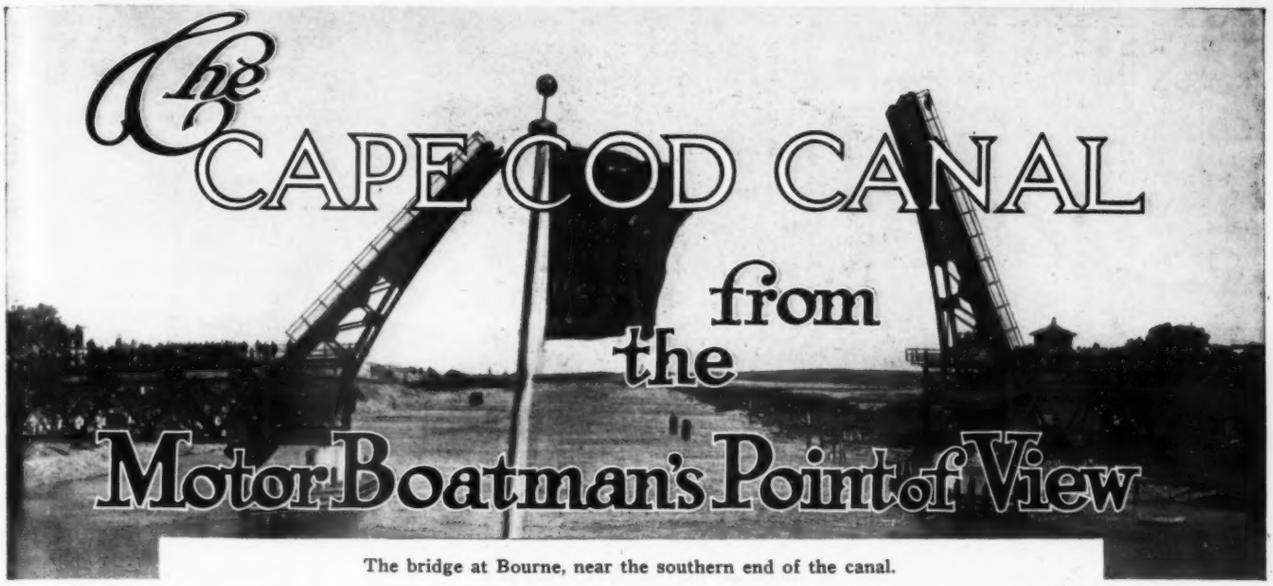
While the boat is not primarily built for speed, still it makes 20 miles an hour with its 45 h.p. Fay & Bowen motor. The engine is forward and entirely enclosed. A Bosch-Rushmore electric starter is attached to the motor, and foot pedal controls are installed so that the operator can start and run the boat without taking his hands off the steering wheel.

One of the pleasing features of Mr. Rockefeller's boat is the divided steersman's seat, making it possible to step back easily to the after part of the cockpit without having to climb over a seat.

Six wicker chairs, the helmsman's seat and the after transom give a capacity of 11 people.

Ruita is owned by Mr. P. A. Rockefeller who is now using her at his summer camp in Upper Saranac Lake. She is powered with a 45 h.p. Fay & Bowen motor and makes about 20 miles an hour.

The CAPE COD CANAL from the Motor Boatman's Point of View



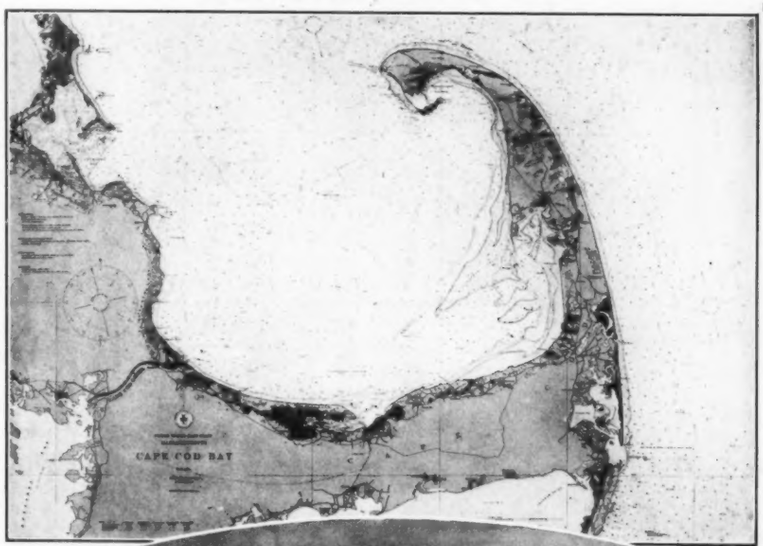
The bridge at Bourne, near the southern end of the canal.

ACCORDING to the latest figures issued by the Commissioner of Navigation at Washington, there was, at the time of his report, a total of 7,500 motor boats on Buzzards and Cape Cod Bays, including those at Boston, Mass. While this latter port may not be directly located on Capt Cod Bay, yet their environments are so closely related as to make them practically one as far as the motor boatmen are concerned.

No finer cruising water for the small or large boat exists than either of these two bays, as they abound in numerous harbors, and the water is everywhere deep enough for navigating without fear of piling up on some ledge or sand-bar. Up to the present time there has been just one barrier which has prevented these 7,500 motor boats from cruising from their own back yard to their neighbors, and this barrier was none other than a narrow strip of sand, varying in width from a minimum of about five miles to a maximum of perhaps twice that amount, and commonly known as Cape Cod.

However, for about one month, Cape Cod has no longer been officially a cape, for with the opening of the Cape Cod Canal, it became in reality an island. Now Cape Cod and Buzzards Bay are only eight miles apart for the deepest draft motor boats. The centers of these bays are only 35 miles distant from each other, whereas previously it was necessary to navigate at least 110 miles of America's most treacherous waters to get from one body of water to the other.

Chart showing canal and Cape Cod Bay.



While the canal which cuts the cape may be of great importance to the 7,500 local motor boats, think of how much greater importance it is to the thousands of motor craft whose home ports are at some of the other seacoast or inland towns, both to the north and to the south of Cape Cod, and which annually cruise along this coast, but have been limited in their cruising radius by not caring to risk their boats and lives in a trip over Nantucket Shoals and around Monomoy. Even if time and expense were no object, there was not a single safe harbor for a hundred odd miles that a motor boat could make in time of need, and so is it a wonder that few cared to cruise around this exposed sand bar?

But now things are different, and the route from Long Island Sound to the upper New England coast, instead of being shortened by something like 70 miles, has been made safe. A minimum depth of 25 feet, with a minimum width of 100 feet in the canal, makes the inside route a possibility for even the large coastwise steamers.

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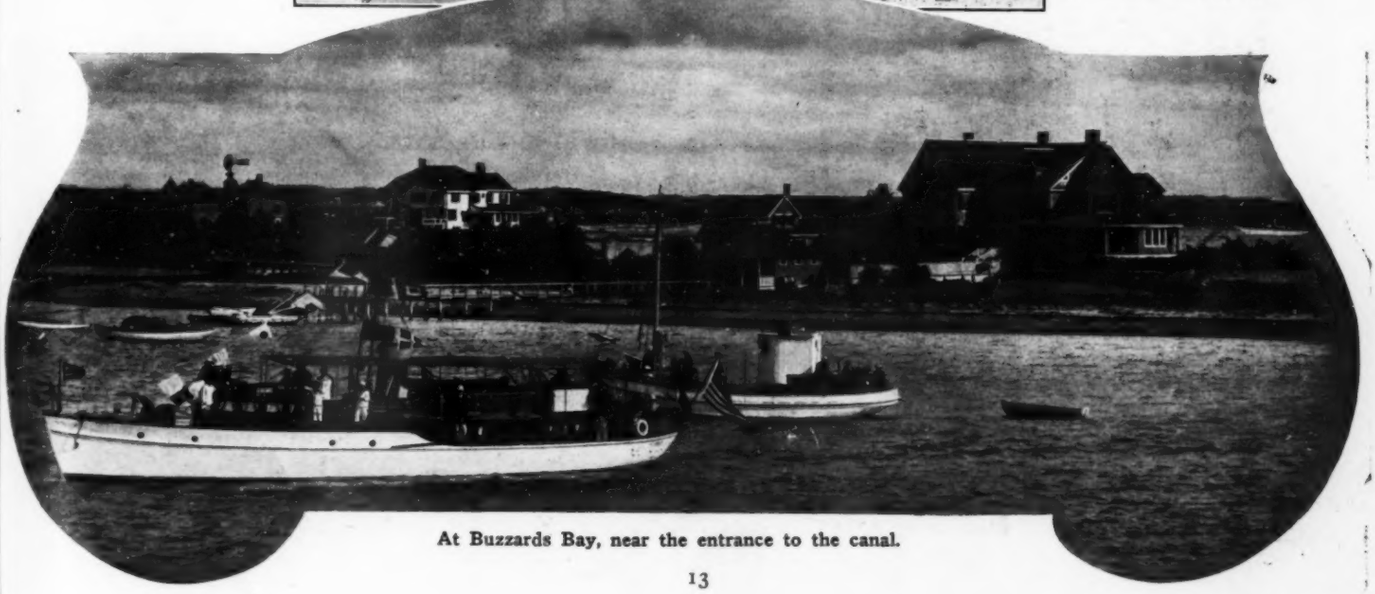


At Buzzards Bay, near the entrance to the canal.

Average Motor Yacht of 1914.

A Comparison of the Number, Size, Type, etc., of Motor Boats Built During Two Years.

Some Striking Characteristics in Regard to the Craft Turned Out Recently in This Country.

THE motor boat building season of 1914 has been an important one for at least three good reasons: there have been more motor boats built than during the year previous, more large motor yachts built than in 1913, and also more small boats. As 1913 itself was a record year, therefore the present season can go down as the greatest in the history of modern motor boat building.

Of the total cruisers and motor yachts built during the past two years, the relative *size of the circles* shown on this page indicates the comparative number built of each length. For example, new boats of 45 feet and less in length lead, as 39 per cent. of the total boats built fall in this class. 28 per cent. had a length over all of between 45 and 60 feet, 27 per cent. between 60 and 99 feet, and the large motor yachts of 100 feet and over are recorded as 6 per cent. of the total.

The growth of each class from last year to this is shown by the areas of the *segments of each circle*, and from these it will be seen that cruisers of 45 feet in length and smaller are a shade more popular now than a year ago, though, of course, not much change could be expected in so short a period as one year. The next larger class also shows a gain; in fact, the only one which shows a falling off in the number of new boats built is the 60- and 99-foot class. Even the largest class shows a 1 per cent. gain.

The raised deck type, typical of the American motor boat, is steadily gaining in popularity as this year 68 per cent. of cruisers built were of the raised deck type, while in 1913 only 57 per cent. of the new boats were of this type—a gain of 11 per cent. in one year. Trunk cabins, which a few years ago were decidedly in the majority, are showing a steady decrease now. 27 per cent. of the cabin boats built in 1913 had trunk cabins, while this year we find only 22 per cent. had this form of upper structure.

The number of auxiliaries built shows no radical change, although there has been a falling off in this class of about 2 per cent.

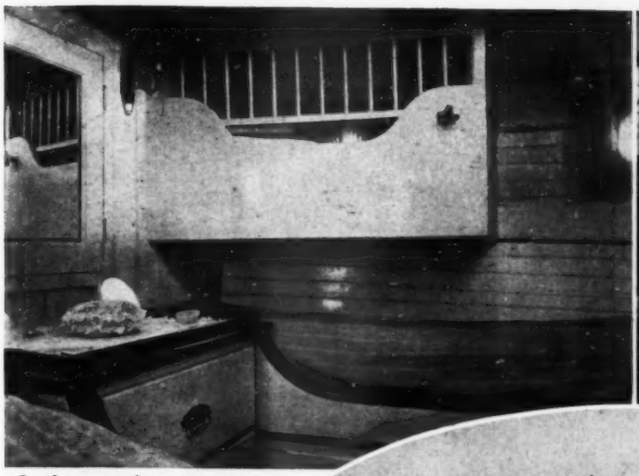
The average dimensions of all the cruisers built this year is clearly indicated on the halftone of the raised deck cruiser shown on this page. For example, the average overall length of all the cruisers built in 1914 is 53'-9" which is found by adding together the lengths of all boats built and dividing this sum by the number of new boats. Likewise we find the average waterline length to be 49'-9", which shows the boats now have an overhang of two feet, at the bow and the stern. An average draft of 3'-6" seems about right for a boat of the above overall dimensions as is also an extreme beam of 11'-2".

The average power plant is decidedly in favor of the four-cylinder, four-cycle motor by a large majority, and a bore of 6.09" and a stroke of 7.65" is certainly good practice.

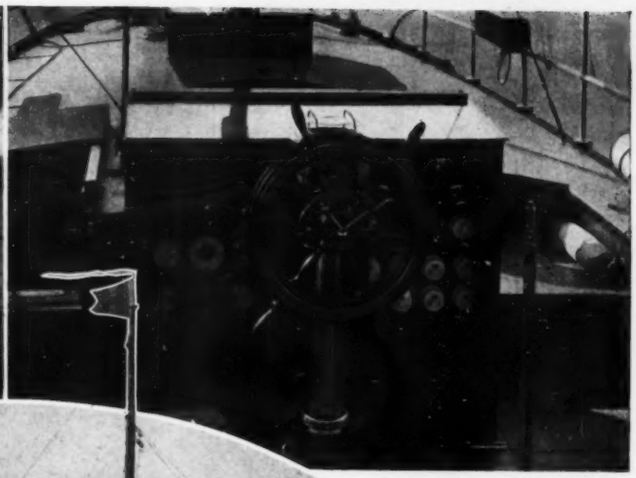
Some of the increase in the popularity of the raised deck type of craft can perhaps be traced to the falling off in the number of flush deck types in the larger sizes; for, while twelve per cent. of the boats built in 1913 were classed as flush deck, only four per cent. of those built this year fall in this class.

Quite apart from the healthy state of both trade and sport shown by the increase in the number of boats of various types built during the past season is the fact that the questions of design and suitability are receiving careful consideration.

Of all the cruisers built in 1914, the above particulars represent the average boat.



In the owner's stateroom note the safety bunk for the "two-year-old."



Arrangement of wheel, chart table and control cabinet.

A BIG 38 Ft. MOTOR YACHT

KEX II

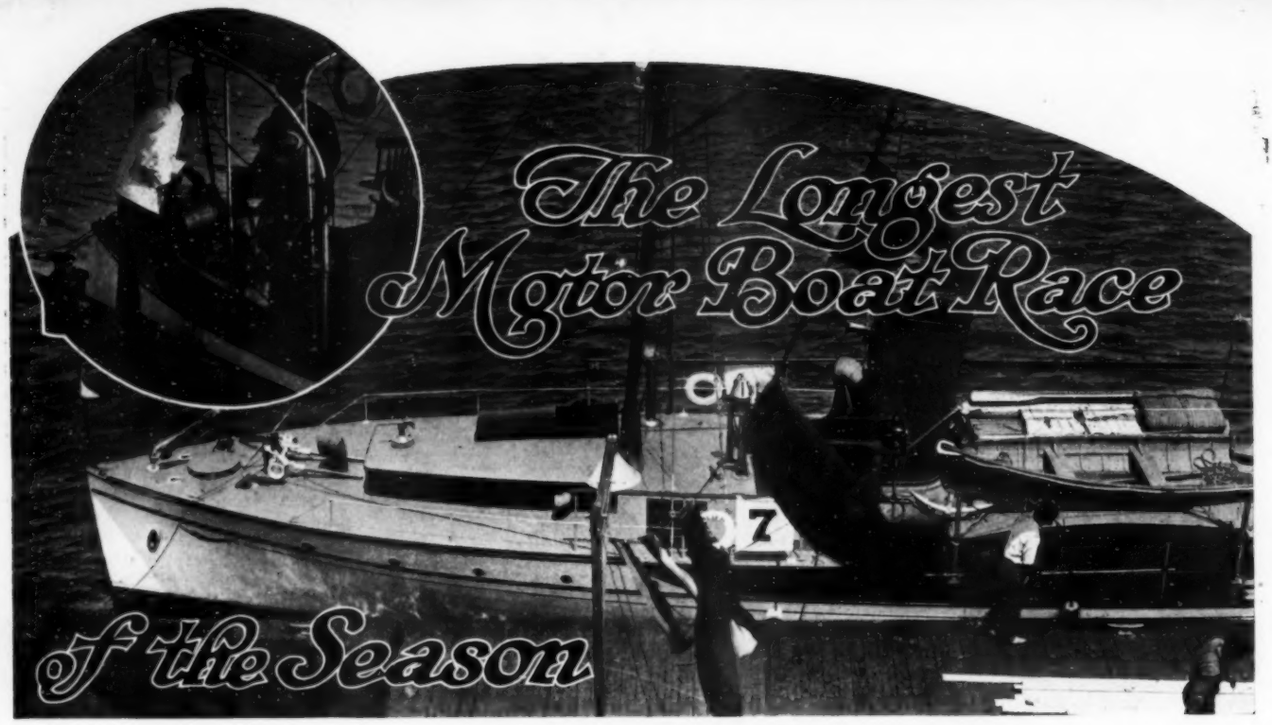
NEITHER time, thought nor expense was spared in building Kex II., to insure strength with the heaviest timber and plank; seaworthiness, with a deep keel trussed with 1,800 pounds of iron, flare forward and high freeboard throughout; reliability—by careful installation of a high-grade motor, the best accessories on the market, and the special manufacture of numerous devices, controls and steering-gear for this individual installation; safety—by dividing the hull, with watertight bulkheads, into three separate and non-communicating compartments, isolating the power plant in its entirety from the living quarters and galley; and last, but not least, comfort—by wide berths, ample head room, lots of light, and the "last word" in plumbing, galley equipment, lighting and upholstery.

The layout, from bow to stern below deck, is as follows: Watertank, 75 gallons; chainlocker, under; galley, toilet, saloon, water-tight double-planked bulkhead, engine-room, double-planked bulkhead, and owner's stateroom.

(*Continued on page* 43)

In the main cabin one finds a room paneled and wainscoted in white and French gray with mahogany furniture and cretonne upholstery—an apartment fitted with Pullman berths, drop-leaf table, Victrola, china closets, lockers and two full-length clothes lockers.

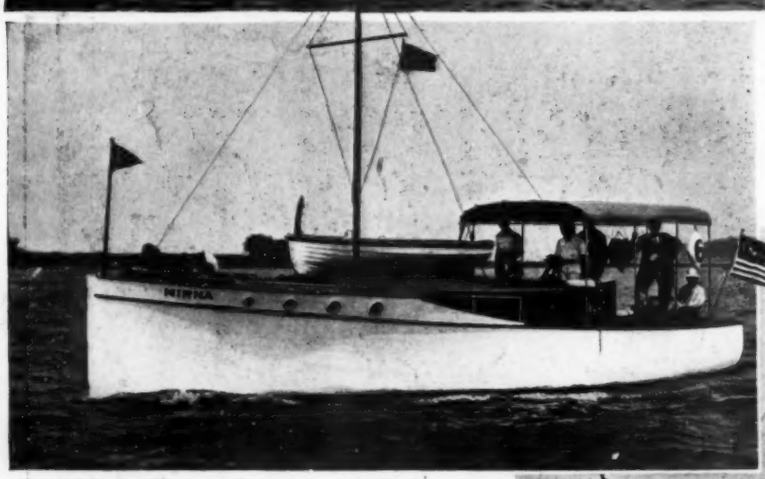
Of all the cruisers built in 1914, the above particulars represent the average boat.

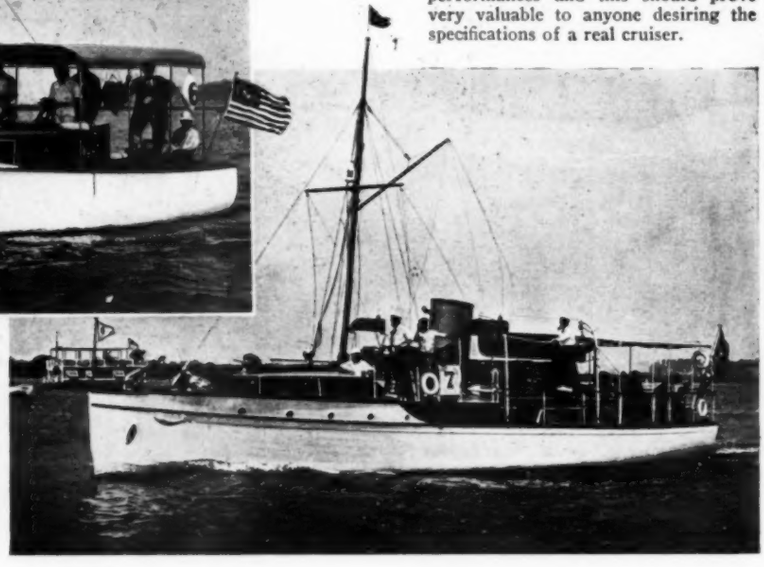


The Longest Motor Boat Race of the Season

Complete Details of the Boats in the Camden-Baltimore Ocean Race.

CLASS B.	L.O.A.	L.W.L.	B.O.A.	B.W.L.	DEPTH AT "C."	M.S.	MOTOR	BORE	STROKE	NO. OF CYLINDERS	H.P.	RATING	ALLOWANCE	START JULY 22, 1914	FINISH	ELAPSED TIME	CORRECTED TIME	POSITION
Jennie S.	34.1	32.3	9.16	7.92	1.197	9.48	Hall	5½	6¼	2	16.498	38.64	16-45-12	12:30 P.M.	3-44-32 P.M. 24th	51-14-32	34-29-20	4th
Hyacinth	37.5	....	9.4	8.4	1.16	9.74	Harn's	5 9/16	6¼	2	16.876	39.24	16-09-02	6:00 A.M.	3-12-12 P.M. 24th	57-12-12	41-03-10	
Eugenia	34.1	32.31	9.1	7.8	1.15	8.97	Lion	5½	6¼	2	16.498	39.42	15-57-21	6:00 A.M.	accident	didn't	finish	
Mirna	40.35	38.73	10.85	9.95	1.91	19.00	Hall	5½	6¼	4	32.996	39.78	15-33-57	1:00 P.M.	10-32-04 A.M. 24th	45-32-04	29-58-07	2nd
Ram	34.65	33.25	8.67	7.77	1.22	9.479	Niagara	4½	5½	4	19.44	41.99	14-42-48	6:00 A.M.	8-20-00 P.M. 24th	62-20-00	47-37-12	
Blue Peter	39.93	39.755	8.78	8.36	1.27	10.61	Lamb	4½	6¾	6	33.784	48.91	8-22-49	3:00 P.M.	9-08-08 A.M. 24th	42-08-08	33-45-19	3rd
Casino	36.15	34.05	5.57	7.07	1.26	8.908	Hall	5½	6¼	4	32.996	50.256	7-30-22	3:00 P.M.	3-22-00 P.M. 24th	48-22-00	40-51-38	
Flyaway III.	37.98	37.272	9.3	7.8	0.73	5.694	Van Blerck	5½	6	6	47.514	66.72	Scratch	3:00 P.M.	2-50-00 P.M. 23rd	23-50-00	23-50-00	1st
CLASS A																		
Caliph	60.15	58.13	11.85	10.61	1.89	20.052	Kent	6	8	4	50.268	48.12	3-35-38	2:30 P.M.	7-41-25 A.M. 24th	41-11-25	37-35-47	1st
Marguerite II	71.43	64.31	14.33				Keystone	6	7	8	87.96		Scratch	6:45 P.M.	8-40-00	37-55-00	37-55-00	2nd



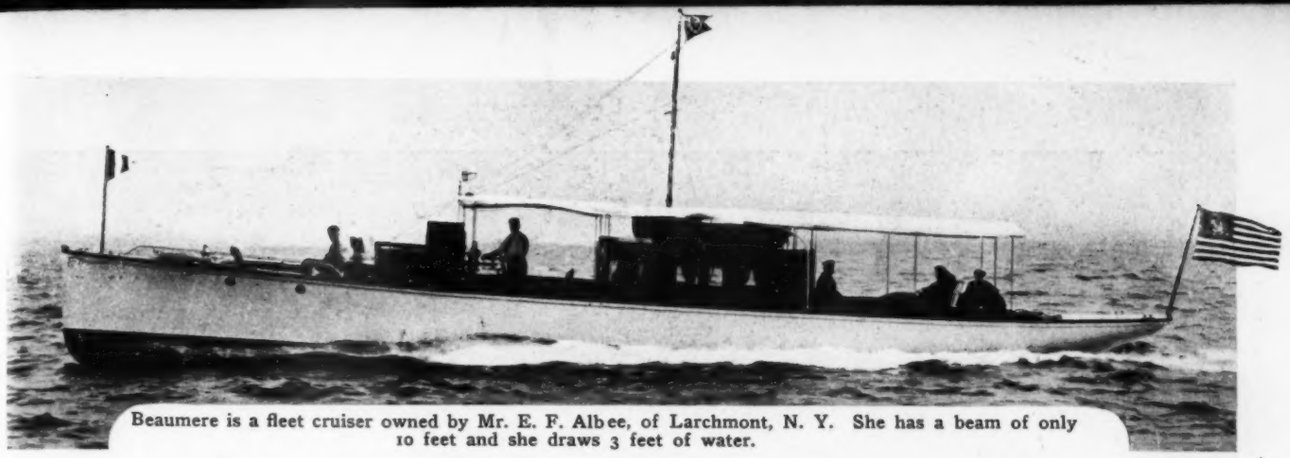


Upper Cut—Flyaway III. winner of both the time and corrected prizes in Class B. This boat covered 424 miles in 23 hours, 50 minutes, finishing almost a day ahead of the next boat.
Lower Cut—Mirna, winner of the second prize, Class B. To the right, Caliph, winner of both the time and corrected prizes in Class A.

FLYAWAY III, Thomas B. Taylor's fast V-bottom cruiser, with a 100 h.p. Van Blerck motor has proven beyond question or doubt that she is the fastest and most seaworthy craft of her kind afloat this year. Up to a short time ago she had cleaned up in every inland race in which she was entered, but her latest achievement in winning the ocean race from Camden to Baltimore, a distance of 368½ nautical miles far outshines her past record.

This race, handled jointly by the Camden Motor Boat Club and the Maryland Motor Boat Club of Baltimore is by far the most important race of the year, or, in fact, for the past several years. That ten real cruisers actually started in a test of this kind is a great credit to the owners and shows that there is still a keen interest in motor boat racing for this type of boat, if the right sort of course is found and the committees are awake to their duties.

In the table above is given for the first time the full particulars about the boats and their performances and this should prove very valuable to anyone desiring the specifications of a real cruiser.

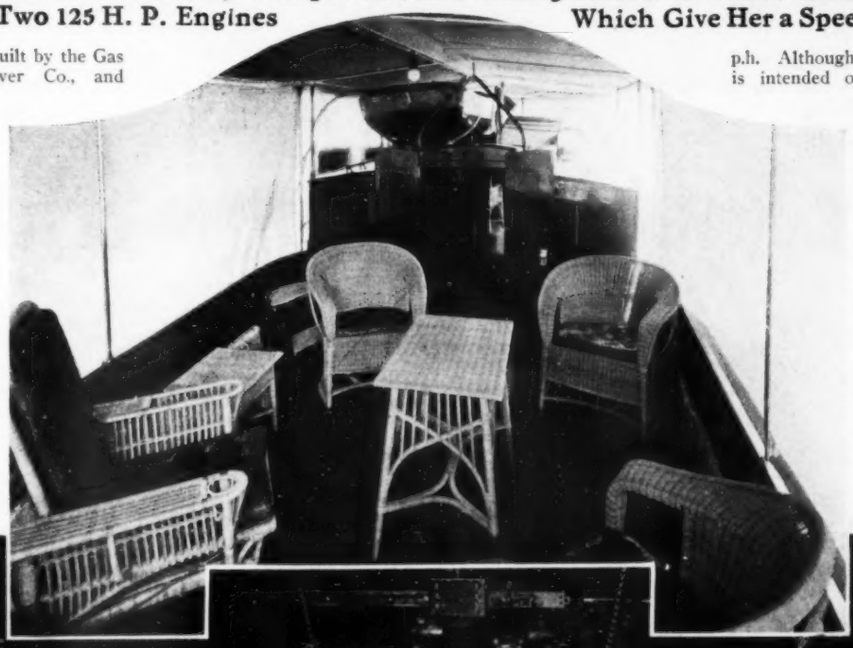


Beaumere is a fleet cruiser owned by Mr. E. F. Albee, of Larchmont, N. Y. She has a beam of only 10 feet and she draws 3 feet of water.

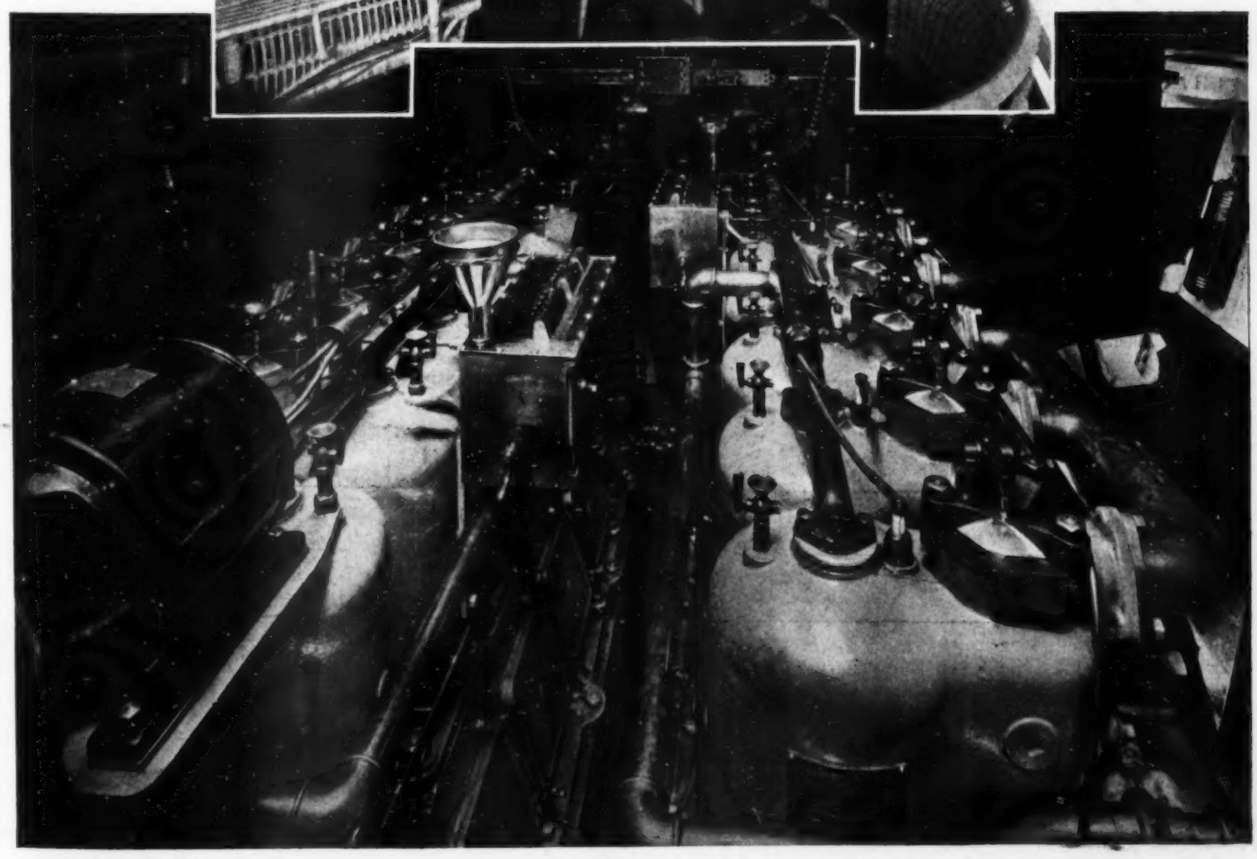
A 65-Foot Day Cruiser.

With Engines Forward, A Roomy Cockpit Aft, and Dining Saloon in Cabin House Amidships. Powered With Two 125 H. P. Engines Which Give Her a Speed of 23 M. P. H.

DESIGNED and built by the Gas Engine & Power Co., and Charles L. Seabury, Cons., Morris Heights, N. Y., and owned by Mr. E. F. Albee, of Larchmont, N. Y., Beaumere is one of the speediest day cruisers now plying the waters of the Sound. With her two six-cylinder 7 inches by 8 inches 125 h.p. Speedway engines, she developes 23 miles an hour, and on her trial trip was credited with 25 m. p.h. Although 65 feet in length she is intended only for day cruising and no provision in her interior layout has been made for staterooms. She has a dining saloon forward of a very roomy cockpit, and galley, toilet, engine-room and crew's quarters forward in the order named. In the saloon, special Pullman-type berths may be used for sleeping two, and the forecastle accommodates a crew of two.



The owner's cockpit looking forward. There is another cockpit over the engine-room for the helmsman.



Photographs by M. Rosenfeld.

The two six-cylinder 7" x 8" Speedway engines are fitted with air starters, and one of them is coupled to a generator for supplying current for searchlight, running lights, cabin illumination, etc.

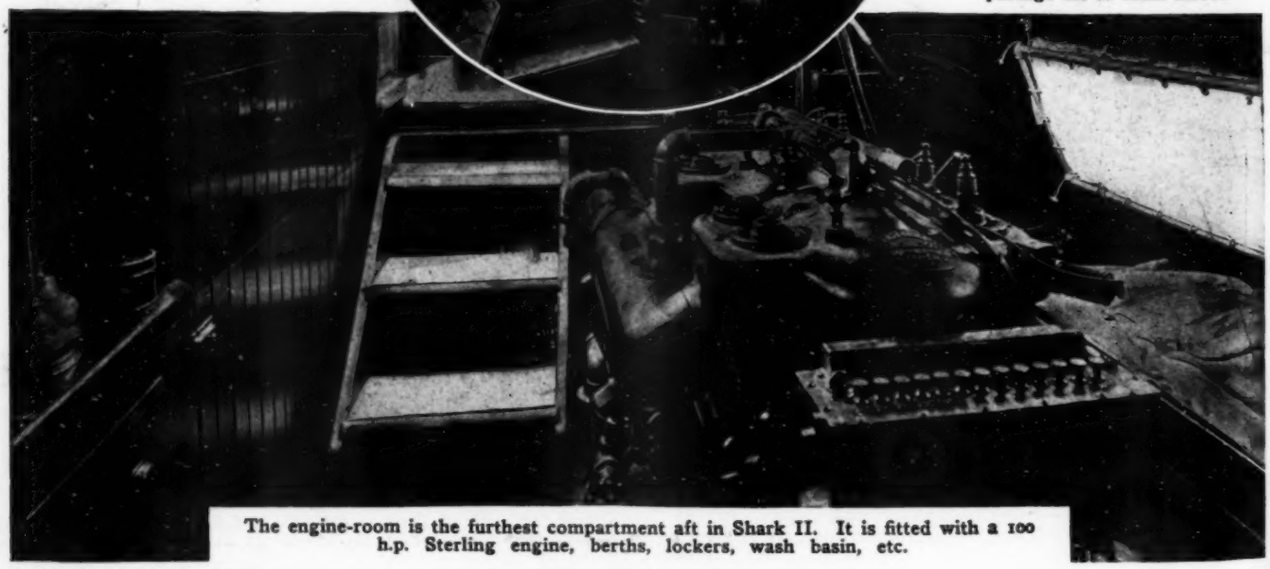
Main saloon looking aft through galley and engine-room.

For River and Coastwise Cruising

Shark II — A 57 Footer

SHARK II, shown in the accompanying pictures, is owned by Mr. Samuel H. Collom, of Philadelphia, having been built for him after designs by J. Murray Watts, of the same city. This cruiser has an overall length of 57 feet 6 inches, a waterline length 6 inches less, a beam of 10 feet 10 inches, and a draft of 3 feet 6 inches, and is powered with a 100 h.p. 6½ ins. x 8 ins. heavy-duty Sterling engine. The owner's quarters below allow for a forward cabin entered by a companionway from the bridge, and main saloon aft connected by a passageway. The galley is aft of the saloon and the engine-room follows, terminating in a companionway to the cockpit. The bridge deck is on the port side, extending only to the centerline of the boat. There is an auxiliary steering-wheel in the after cockpit.

Companionway entrance from bridge to forward saloon showing passage aft to main saloon.



The engine-room is the furthest compartment aft in Shark II. It is fitted with a 100 h.p. Sterling engine, berths, lockers, wash basin, etc.

Photographs by Joseph N. Pearce.

A 25-Foot Seagoing Runabout.

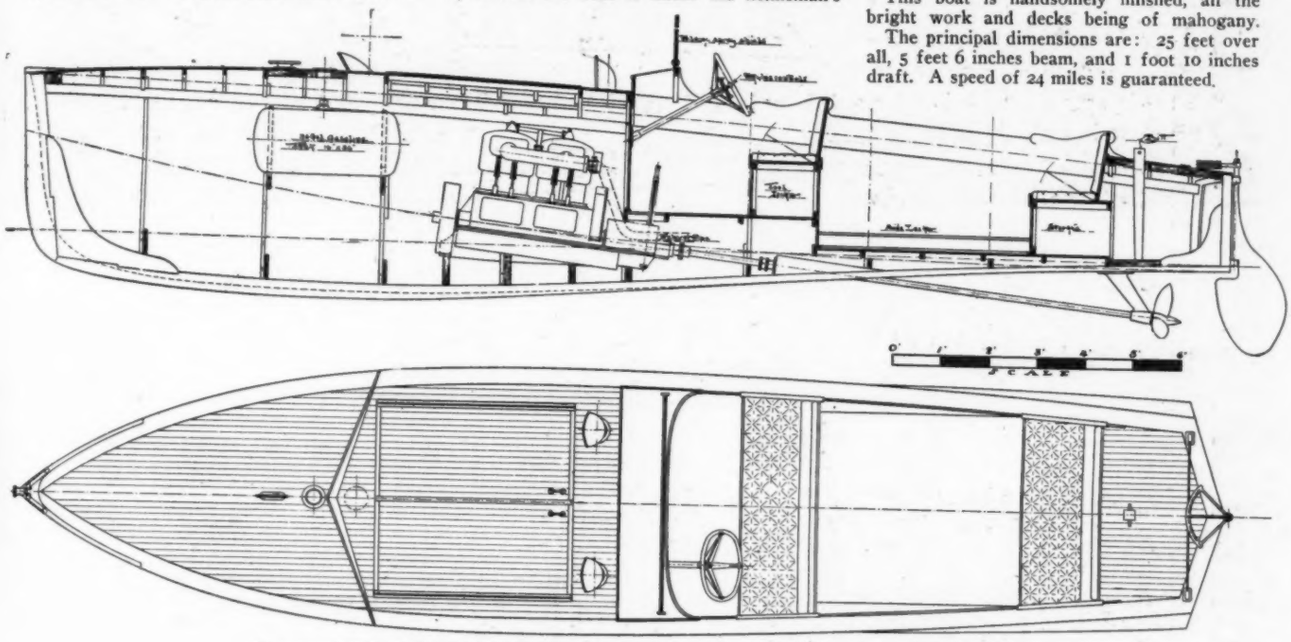
V-Bottom Model with Considerable Freeboard Fore and Aft and Lines Well Flared at the Bow. Power Plant Installed Under Forward Deck and Instantly Accessible Through Removable Hatch.

THE accompanying illustrations show a 25-foot runabout of the V-bottom type, designed by William Edgar John, of Philadelphia. The plans show a boat with considerable freeboard both forward and aft, lines well flared forward and a pleasing tumble home aft. The power plant is installed forward under a well-crowned deck and is instantly accessible through a light, removable hatch. The engine is a four-cylinder, 5½" x 6" Sterling, equipped with an electric lighting and starting plant. The helmsman's seat is arranged aft the engine compartment, and an automobile steering-wheel is conveniently located with the engine controls mounted upon it, so that the boat is under the helmsman's control at all times. The helmsman's position is elevated so as to give a clear view over the bow.

A very comfortable transom seat is located in the after end of the cockpit and the rest of the space is left open for wicker chairs. A 30-gallon cylindrical tank is located forward.

This boat is handsomely finished, all the bright work and decks being of mahogany.

The principal dimensions are: 25 feet over all, 5 feet 6 inches beam, and 1 foot 10 inches draft. A speed of 24 miles is guaranteed.



A type of craft designed for use in unprotected water which will seat ten comfortably.

Secret, A 24-Miler.

A Fast New Runabout 30 Feet in Length by 5 Feet Beam, Powered with a 30-35 h. p. Sterling Motor. Air Tanks Installed in Bow and Stern to Render Her Unsinkable in the Event of Collision.

SECRET, shown herewith, is a fast 30-footer built for Mr. Peter V. Giffin, of New Rochelle, N. Y., by William E. Haff, also of New Rochelle. She has a high and nicely flared bow and her power plant being under the forward deck and further protected by a spray board, there seems little likelihood that she will suffer any inconvenience when the weather man starts things going. The cockpit seats four on two thwarts, the helmsman having his position on the starboard side with engine controls on the automobile-type steering wheel, and reverse lever handy. Secret is equipped with high-speed 30-35 h.p. Sterling engine of the newest model, and is capable of making 24 miles an hour. Her beam is 5 feet and her draft 18 inches. There is a rear starter fitted to the bulkhead.

Photographs by Brown & Dawson.

Secret is a substantially-built runabout recently turned out in New Rochelle. She is equipped with automobile-type steering wheel and outboard rudder.

An 86-Foot Motor Yacht for the U. S. Government.

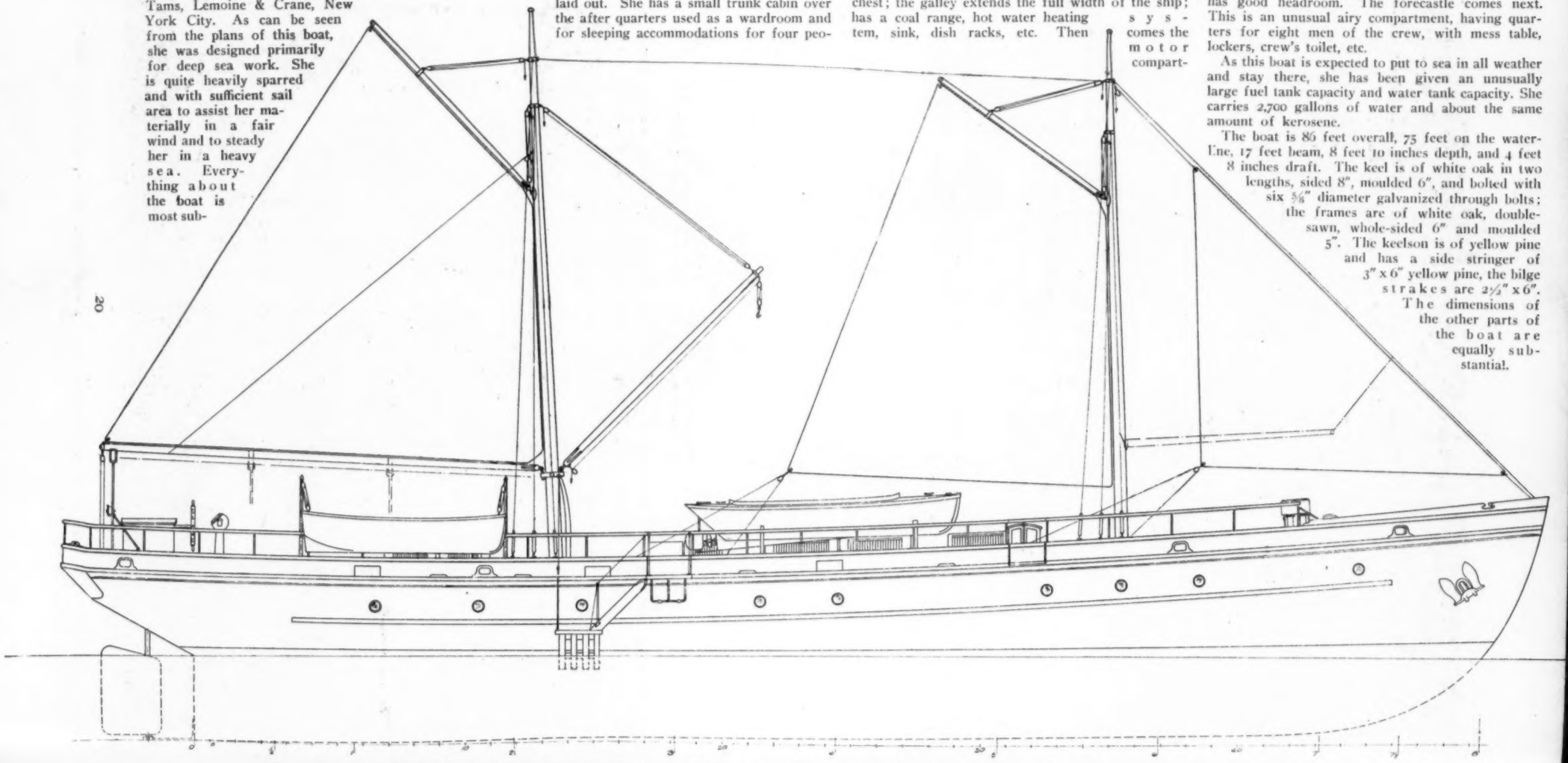
Designed Primarily for Deep Sea Work, She is of Very Heavy Construction, and Carries 150 H. P. and a Large Spread of Sail. Fitted with Fuel and Water Tanks of 2,700 Gallons Capacity Each to Permit Her to Remain Outside for Days at a Time.

THE plans shown are of a 75-foot twin screw cruiser which is being built for the Department of Commerce and Labor for Coast and Geodetic Survey after designs by Tams, Lemoine & Crane, New York City. As can be seen from the plans of this boat, she was designed primarily for deep sea work. She is quite heavily sparred and with sufficient sail area to assist her materially in a fair wind and to steady her in a heavy sea. Everything about the boat is most substantial. Those who have looked over her plans, say that she will probably be the ablest motor driven craft of her inches yet built.

Her interior accommodations are simply laid out. She has a small trunk cabin over the after quarters used as a wardroom and for sleeping accommodations for four people. Forward of this room on the port side is the officers' toilet room; on the starboard side is a passageway to the galley next forward; on the outboard side of this passageway is a very large ice chest; the galley extends the full width of the ship; has a coal range, hot water heating system, sink, dish racks, etc. Then comes the motor compartment in which will be the two kerosene oil engines, developing approximately 75 h.p. each, which will be capable of driving the boat at a speed of 12 miles an hour. The engine-room is well ventilated and has good headroom. The forecastle comes next. This is an unusual airy compartment, having quarters for eight men of the crew, with mess table, lockers, crew's toilet, etc.

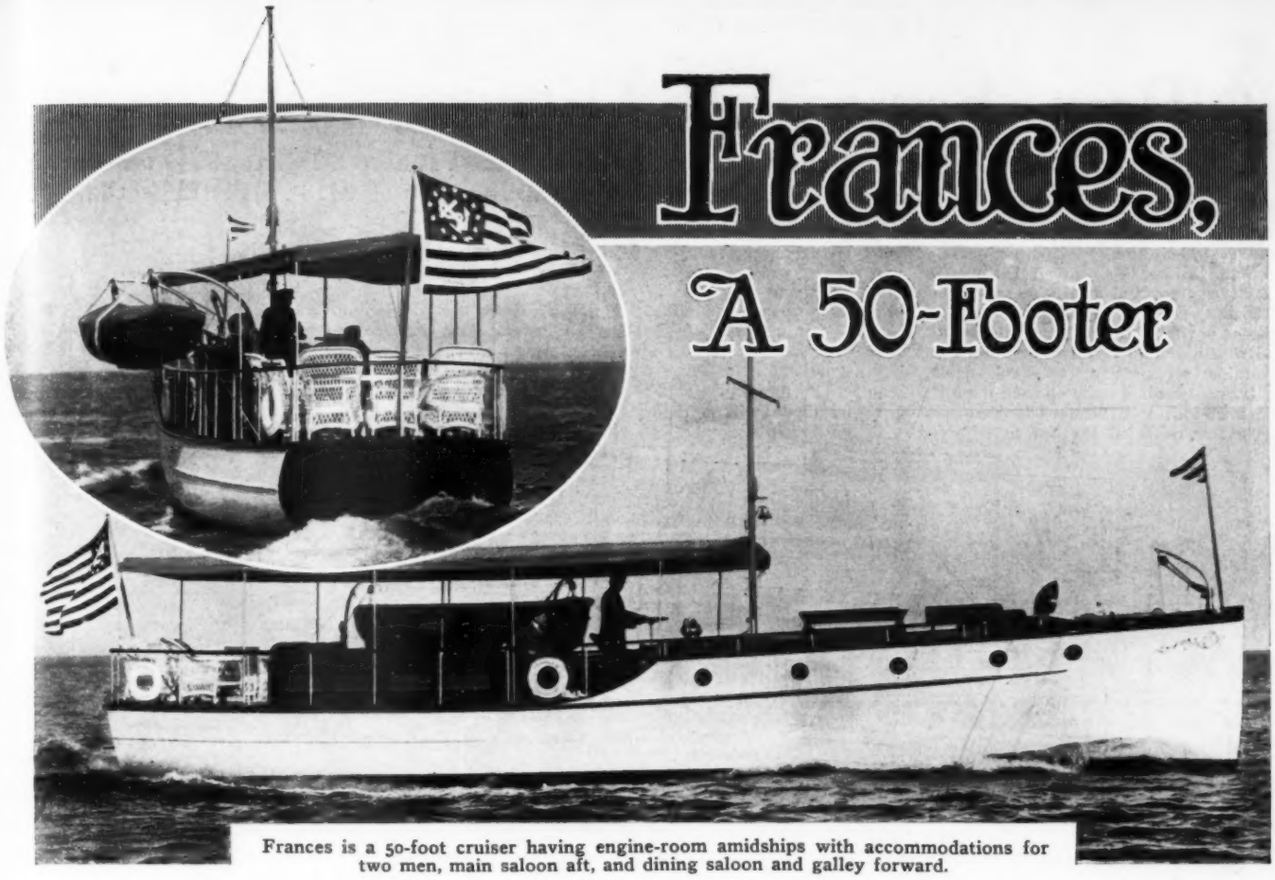
As this boat is expected to put to sea in all weather and stay there, she has been given an unusually large fuel tank capacity and water tank capacity. She carries 2,700 gallons of water and about the same amount of kerosene.

The boat is 86 feet overall, 75 feet on the water-line, 17 feet beam, 8 feet 10 inches depth, and 4 feet 8 inches draft. The keel is of white oak in two lengths, sided 8", moulded 6", and bolted with six 5/8" diameter galvanized through bolts; the frames are of white oak, double-sawn, whole-sided 6" and moulded 5". The keelson is of yellow pine and has a side stringer of 3" x 6" yellow pine, the bilge strakes are 2½" x 6". The dimensions of the other parts of the boat are equally substantial.



The engine-room which is next aft from the forecastle is fitted with two 75 h.p. kerosene oil engines which together are expected to drive the boat at a speed of 12 miles per hour.

Frances, A 50-Footer



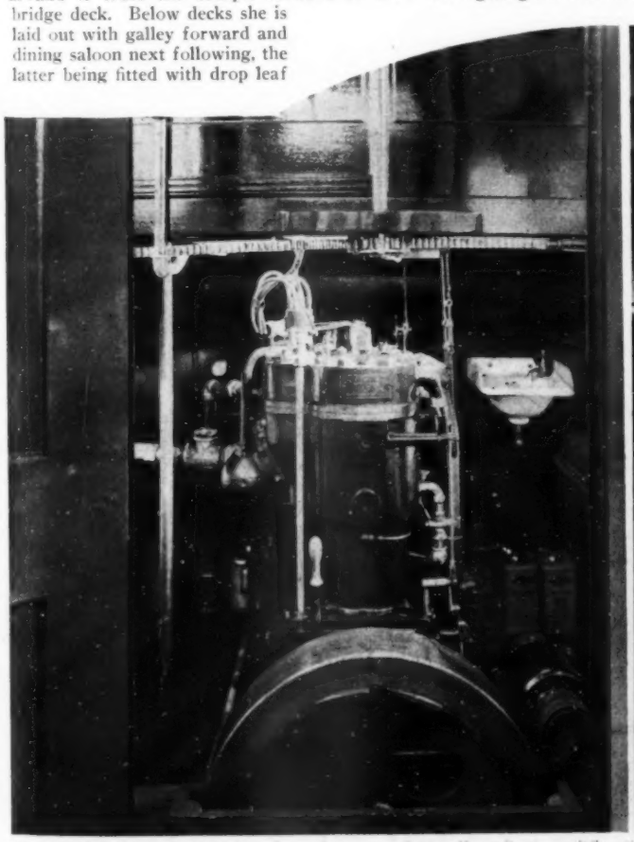
Frances is a 50-foot cruiser having engine-room amidships with accommodations for two men, main saloon aft, and dining saloon and galley forward.

A 50-FOOT cruiser of pretty lines and ample accommodations has recently been turned out by the New York Yacht, Launch and Engine Company, Morris Heights, N. Y., for Mr. Erwin M. Jennings, of Bridgeport, Conn. Frances has a raised deck running aft to about amidships and cabin house over the main saloon having passageways around it from the cockpit forward to the bridge deck. Below decks she is laid out with galley forward and dining saloon next following, the latter being fitted with drop leaf table and four upper and lower berths. Opposite the companionway entrance to this compartment is located the toilet.

The engine-room is placed under the bridge deck, and in it, in addition to the 4-cylinder 6½-inch by 8½-inch Twentieth Century motor, are bunks for two men, wash basin, toilet, whistle tank, etc. A friction-driven dynamo for lighting the boat is run off the flywheel of the engine.

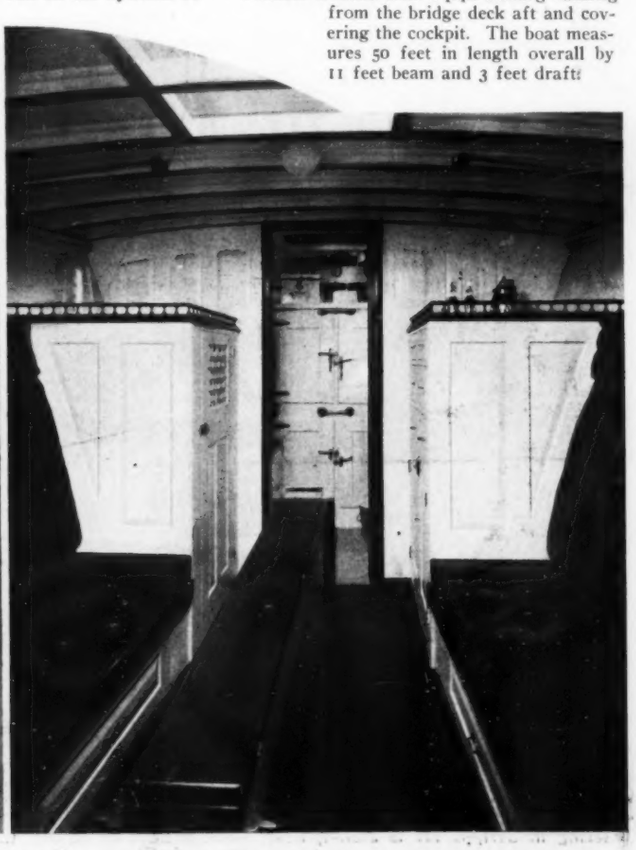
Next aft and separated from the engine-room by a bulkhead is the main cabin having fixed berths for two and a dressing-room adjacent. The main cabin is entered through a companionway from the cockpit, which latter is sufficiently large to accommodate half a dozen deck chairs.

Frances is fitted with a pipe awning running from the bridge deck aft and covering the cockpit. The boat measures 50 feet in length overall by 11 feet beam and 3 feet draft.



Photographs by Brown & Dawson.

The power plant is a 4-cylinder, 6½" x 8½", 40-50 h.p., Twentieth Century engine, fitted with air pump and electric generator. Toilet and wash basin are installed in the engine-room.



The dining saloon is a cheerful room finished in white enamel. In addition to upper and lower berths for four in this compartment, the boat sleeps two in the main saloon.

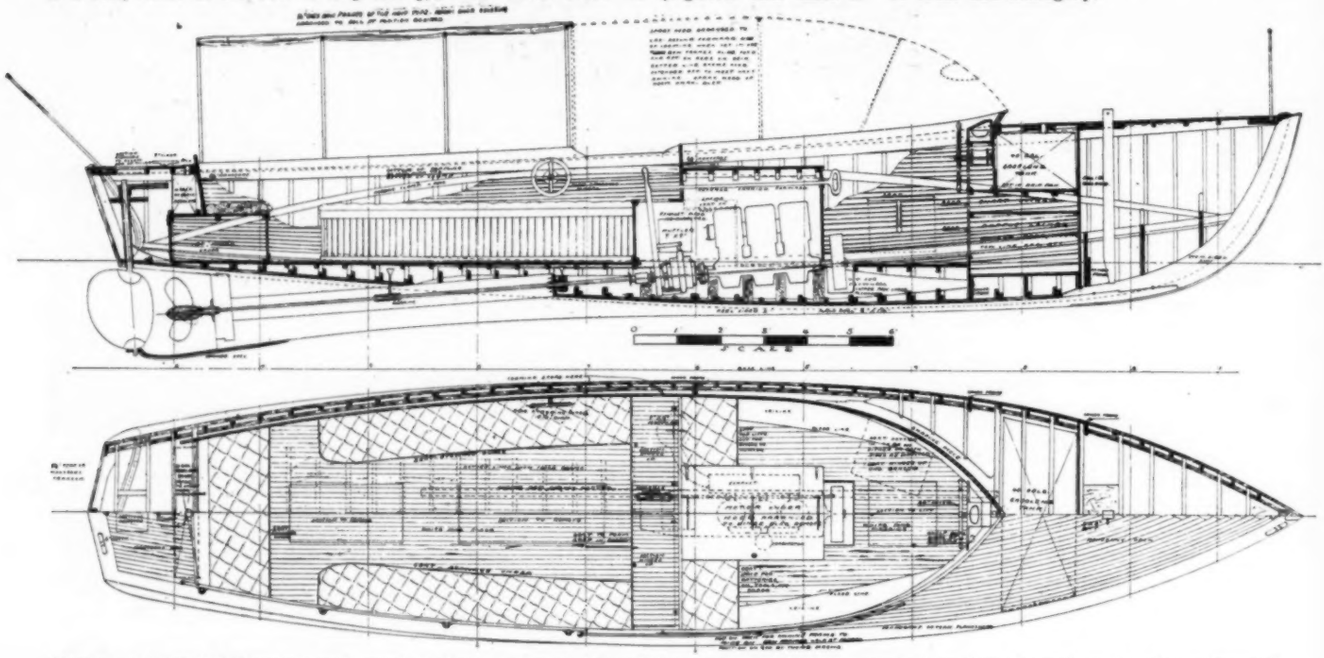
The engine-room which is next aft from the forecastle is fitted with two 75 h.p. kerosene oil engines which together are expected to drive the boat at a speed of 12 miles per hour.

A Runabout with Distinctive Lines.

Having Rather More Freeboard, Depth and Displacement Than Usual in a Twenty-Eight-Footer. With a 3-Cylinder 2-Cycle 15 h. p. Engine a Maximum Speed of 11½ M. P. H. Is Expected.

IN the accompanying design Wm. J. Deed, Jr., of Boston, has, in conjunction with the owner, Mr. Joseph DeCamp, of the same city, evolved a craft possessing characteristics particularly adapted to the open water use to which the boat will be put. The plans show a runabout or express launch of considerably greater freeboard, depth, displacement and carrying power than is usual in a 28-foot open boat. The least freeboard is 2 feet, while at the bow it is 3 feet 5½ inches. The hull draws 13 inches at the bow, giving a deep bold bow with flaring sections which will give a feeling of security to the helmsman, for the coaming extends waist high when he stands at the wheel. There is a fair amount of deadrise aft, while the waterline is easy to allow of good action, especially in a following sea.

The three-cylinder 2-cycle 15 h.p. engine is installed under a removable hood with seat on either side. A 40-gallon fuel tank is placed in the bow and aft is a reserve tank of 10 gallons' capacity. Charts, anchors and rodes, oilskins, etc., are all stowed handy to the helmsman, who also has all engine controls within reach. A folding spray hood is arranged to extend back to the navy hood over the after cockpit. The coaming has been cut away amidships, partly to aid in boarding the boat, and partly to give the appearance of two cockpits. The boat is built of cedar and mahogany.



Having substantial framing and good ¾-inch cedar planking this runabout will be expected to live through a "smoky so'wester" in comfort.

Scripps III, A 15-Knot 35-Foot Cruiser.

SCRIPPS III is a 35-foot speed cruiser capable of something better than 15 knots. As shown in the accompanying picture she is stripped of her cruising equipment, preparatory to making a record run. She has a beam of 7 feet 6 inches and is divided below into three compartments. The fore cabin is 7 ft. 6 in. long with two berths; then comes the engine-room with electric lighting plant, patent speed indicator, etc.; then the main cabin with four berths, cabinet tables with folding top, crockery shelves and provision lockers. This is the living-room and is furnished with light from five electric bulbs. Next comes the cockpit, 7 ft. 6 in. long with steering wheel and engine controls mounted on the bulkhead and reverse lever brought to the same point.

Steering in Scripps III is accomplished without lines or chains, the wheel acting through a steel rod, connecting with a side tiller on the rudder stock. Both rudder stock and blade are of Tobin bronze.

-PRIZE- CONTEST

In Questions and Answers

Utilizing the Exhaust.

Various Ingenious and Practical Methods of Taking Advantage of Heat Units Otherwise Wasted. Suggestions Include Water Heating System for Small Cruisers, "Simmerer," and Bilge Pump.

A Hot Water System.

(The Prize-Winning Answer.)

THIS hot water system is intended for small cruisers where it would be impossible to install a large hot water heating system. Of course, this plant can be used in any size boat.

This system will provide hot water for toilet and galley purposes and yet while the stream will not be very large or have much pressure, it will be hot and most useful.

Anyone can install this plant in a boat using a gasoline engine for its power, because the exhaust is used in the heater.

The heater is shown in an accompanying sketch. It is not necessary to adhere to this type of coil, but the one shown should give good results. It consists of four coils formed from one length of annealed copper seamless tubing, not less than ¼ inch I. D. The two larger coils are in the center and a smaller one on each side; this arrangement fills the container nicely and presents more surface to the hot gases.

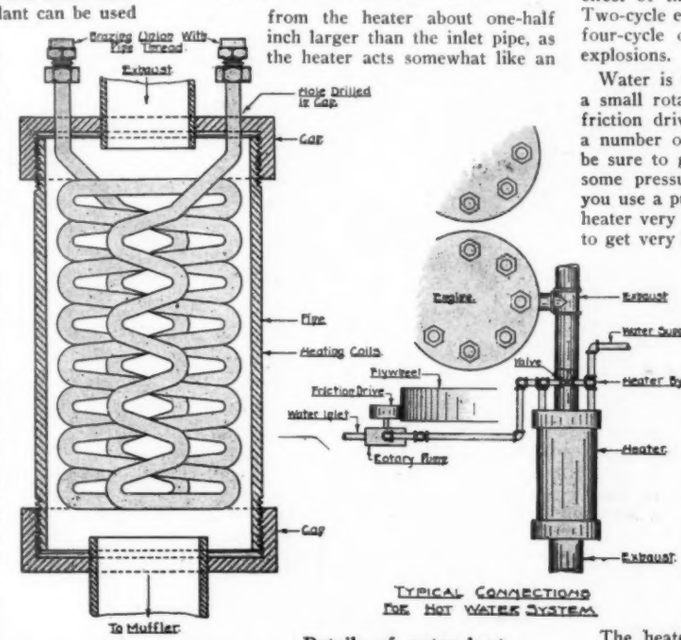
The coil container is constructed of a piece of pipe about 4 inches I. D. and 10 inches in length. It is fitted with pipe caps on each end, into one of which the exhaust pipe screws—in a hole of suitable size drilled and tapped in the cap. It might be best to make the pipe size from the heater about one-half inch larger than the inlet pipe, as the heater acts somewhat like an expansion chamber.

Let the two coil ends come out of the cap through holes which have been bored for this purpose. Try to place the heater as near to the engine as possible so as to get the full effect of the red hot fire from the cylinder. Two-cycle engines will furnish more heat than four-cycle owing to the greater number of explosions.

Water is pumped through the apparatus by a small rotary pump driven by an adjustable friction drive from the flywheel. There are a number of good pumps on the market but be sure to get one that will pump up against some pressure but with a low capacity. If you use a pump that forces water through the heater very fast it will not have sufficient time to get very hot.

The piping should be ½ inch throughout and connected to the heater with reducing fitting and brazing unions with pipe thread. Use a hard solder when brazing. If faucets are used on the line it will be necessary to provide an overflow pipe from the end of the line with its outlet higher than any faucet. This will prevent the pump from working against a high pressure which might injure it or force a leak somewhere. As soon as a faucet is opened water will cease to go out of the overflow. Only operate the pump when water is needed.

The heater should be by-passed as shown and fitted with a gate valve. When the by-pass valve is opened the water will not go through the heater; so, with the use of a by-pass a single line may be used for either hot or cold water at will.



SECTION OF HEATER WITH HEATING COILS

TYPICAL CONNECTIONS FOR HOT WATER SYSTEM

Details of water heating system.

QUESTIONS FOR THE NOVEMBER ISSUE.

1. Based on your engine troubles for 1914, what steps in overhauling your engine this fall will you take to prevent them next season?

(Suggested by Respite, New York City.)

2. Describe and illustrate if necessary the best method of storing extra gasoline for an extended cruise or race on a moderate size cruiser considering safety, convenience, economy of space, etc.

(Suggested by W. E. Motz, Philadelphia.)

3. Illustrate and explain the construction details of the best type of stern for a medium size cruiser, considering ease of building, strength and resistance properties.

(Suggested by E. P. B., Port Huron, Mich.)

RULES FOR THE CONTEST.

Answers to the questions above, addressed to the Editor of MoToR BoatinG, 119 West 40th St., New York, must be (*a*) in our hands on or before September 25, (*b*) about 500 words long, (*c*) written on one side of the paper only, (*d*) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired.) Questions for the next contest should reach us on or before the 25th of September.

The prizes are: For each of the best answers to the questions above, *any article* advertised in the *current issue* of MoToR BoatinG, of which the advertised price does not exceed $25, or a credit of $25 on *any article advertised* in the *current issue* of MoToR BoatinG which sells for more than that amount. (*There are three prizes—one for each question—and a contestant need send in an answer to but one if he does not care to answer all.*)

For each of the questions selected for use in the next contest, *any article* advertised in *this issue* of MoToR BoatinG, of which the advertised price does not exceed $5, or a credit of $5 on *any article* advertised in *this issue* of MoToR BoatinG, which sells for more than that amount.

When you send in your answers you must state what you will take for a prize, should you win one.

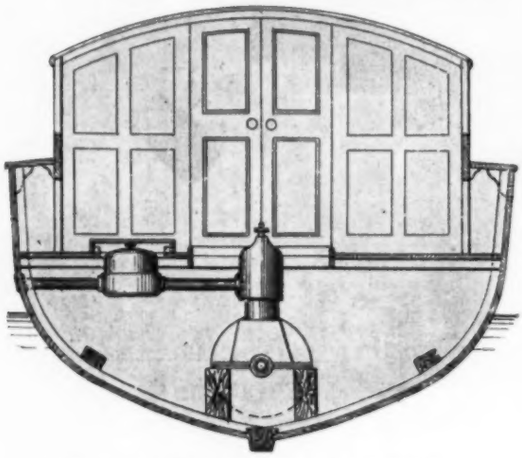


Fig. 1. Mr. Marshall's device for keeping a kettle hot.

Keep the piping low and under the flooring out of the way as it should never need attention. Provide the lowest part of the line, which should be in the bilge, with a tee and drain cock. Cover the line from heater to faucets with asbestos heat insulation.

B. F. Dashiell, Baltimore, Md.

An Exhaust Heater.

THE exhaust in a motor boat may be utilized in several ways, particularly if the exhaust be above the waterline and the engine of good size.

First, it may be used both in open boats and cruisers to blow the whistle. The whistle must be connected to the exhaust piping by a two-way valve of the type operated by pulling a wire. This is the same use as is made of the exhaust on many motor cars.

Again, it may be used to operate a bilge water ejector of the type shown in the accompanying diagram. All the parts are pipe, so dimensions are not given. The nipple forming the body of the ejector should be a few sizes larger than the main exhaust line and about six inches long.

The end of the main exhaust pipe, "C," should be machine threaded to take a lock nut and a pipe reducer; this is done so that the reducer may be adjusted to make the angular opening at the end of nozzle right to draw the water up and out. All joints should be whiteleaded and made air-tight. This ejector can only be used, of course, where the exhaust is above the waterline. A strainer should be put over the water intake.

Fig. 2. Mr. Marshall's device in section.

and a cock put in the intake to be closed when not in use. This system is practical and will not interfere with the efficiency of the motor. This plan is also used in some commercial phases.

Again, the exhaust may be used as a heater of the type shown in the diagram below. The inside box is of sheet iron. Its dimensions are 24 inches x 21 inches x 6 inches. The wooden box surrounding is 2 inches larger all around and packed with mineral wool. The metal box rests on clay columns. The baffle plates should contain 3 holes a little smaller than the exhaust cross-section. Each of the three chambers should contain a heating brick to hold the heat from the gases. A heavy wire guard rail should surround the top at a height of about 3½ inches. The exhaust should be packed with asbestos where they pass through the wooden box. The heater should be connected up according to the diagram.

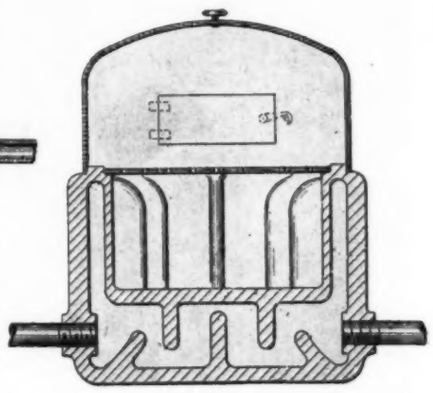
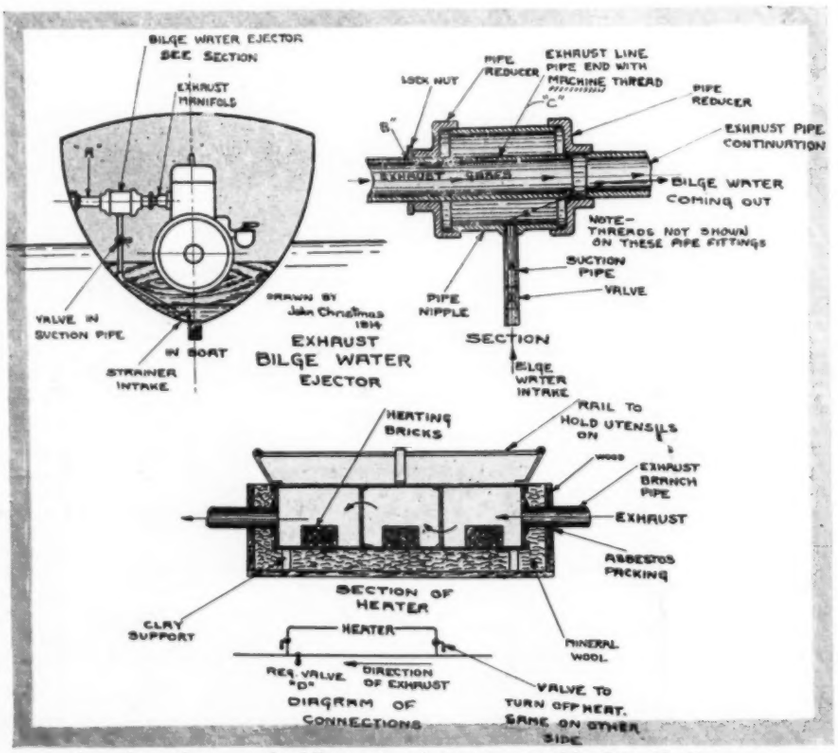


Fig. 3. A "two-story" arrangement of the same heater.

This heater may be used in the galley to keep food and dishes warm, and to warm water; or it may be used—omitting the rail—as a heater in the floor of the cabin by covering the top with a wire grating or some similar protection.

John K. Christmas, Easton, Pa.



An exhaust heater and a bilge water ejector suggested by John K. Christmas.

Utilizing the Exhaust.

PERHAPS you have tied a coffee pot over a cylindrical muffler—I have. Or canned goods may be heated the same way. Of course, the water which passes through the exhaust must be turned off to get the best and quickest results. This is one of the best ways of utilizing the exhaust.

The sketches herewith show a clever device designed to carry out this idea, which has been patented but has never been put on the market. The top of the muffler is flattened to receive a kettle or anything else to be heated, and a cover is provided to retain the heat. Fig. 1 shows how the device is connected. Fig. 2 shows it in section, and Fig. 3 is a "two-story" modification of the structure.

Such an arrangement is particularly desirable to cruisers, for they always appreciate a quick way of boiling water or of heating canned goods or even roasting or baking. The device has a decided advantage over the coffee pot-and-muffler method in that the kettle is here kept in place by the cover, obviating the danger of its spilling out its contents at a lurch of the boat.

E. W. Marshall,
New York City.

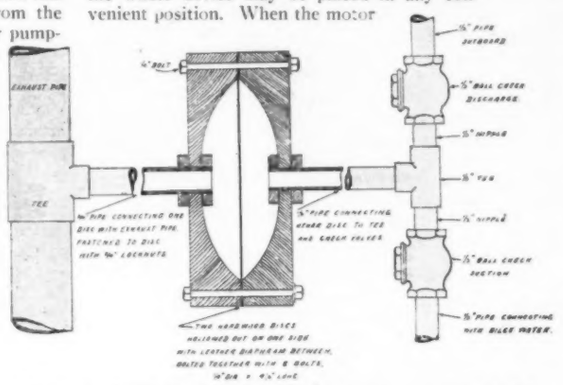
An Automatic Bilge Pump.

ONE of the most useful devices which can be operated by the exhaust from the motor is a diaphragm pump for pumping out the bilge water.

The pump consists of two circular flanges of hardwood about 9 inches diameter and 2 inches thick, each hollowed out on one side and bolted together at the edges with a leather disc or diaphragm between them. Each wooden disc has a hole in the center, into which a pipe is fastened, each pipe connecting with the chamber on opposite sides of the diaphragm. One pipe is connected with the motor exhaust pipe and the other is connected to a tee and on each side of the tee is connected a check valve for the suction and discharge.

The suction end is piped to the bilge with strainer on the end and the discharge is piped overboard.

The pipe to diaphragm can be attached to any convenient place on the exhaust pipe and the whole device may be placed in any convenient position. When the motor is started, the pulsations of the exhaust act on the diaphragm causing a certain amount of vibration which is transmitted to the other side and operates the check valves, making the water flow through suction check and out through discharge.



Constructional details of a diaphragm pump operated by exhaust pressure.

The device takes very little, if any, power from the motor, and when once installed is automatic in its action, starting and stopping with the motor. A drawing of the device assembled is shown, a portion of which is in section, which shows very clearly the construction. The material required for this useful device can be procured anywhere and can be assembled by anyone of ordinary intelligence.

The pipe used to connect one disc to the exhaust line should be of ¾-inch diameter.

JOHN CLITHEROE,
Attleboro, Mass.

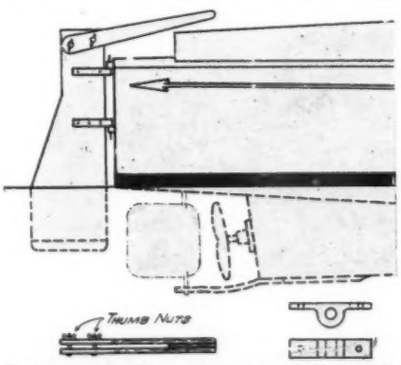
Providing an Emergency Rudder.

How a Very Necessary Article of a Small Boat's Equipment May Be Constructed by the Amateur. Strength, Ease of Attachment, Looks and Convenience in Stowing All Taken Into Consideration.

For the Open Boat.

(The Prize-Winning Answer.)

THE rudder shown in the accompanying drawing is designed similar to the usual outboard rudder now so popular on cruising motor boats. Referring to the drawing, the rudder shown is made of oak with a cleat also of oak, securely fastened to the bottom edge to prevent warping. The size of the rudder and fittings will, of course, vary with the size of the boat, depth of transom, etc., but the assembled sketch will suggest the proper proportions.



Take-down rudder which occupies but little space in the locker.

The braces are galvanized iron (or brass if preferred) and bolt to the rudder as shown. The upper brace, however, which is shown with the spur pointing upwards, should be fastened with two loose fitting carriage bolts and thumb or wing nuts, so that they can be readily removed for attaching or detaching the rudder. This arrangement allows attaching the rudder in case of emergency, without the use of tools and at the same time securely prevents the rudder unshipping.

The gudgeons on which the rudder swings are galvanized or brass awning brackets which can be purchased in any marine supply store.

For the tiller, cut two pieces of oak, shaped as shown, and fasten together at the handle end with a filling piece of the same thickness as the rudder. This end should be rounded slightly to make a comfortable handle. At the other end bore for two carriage bolts with thumb-nuts as shown, to correspond with similar holes in rudder.

The proper locations of these holes depends on the angle of the tiller and should be fitted in place on the boat. By removing the second bolt the tiller can be swung entirely around to fit snug against the back of rudder as shown by dotted lines in the drawing, thus making a very compact arrangement for stowing away, with no pieces to get lost or mislaid.

W. ELMER MOTZ, Philadelphia, Pa.

Portable Emergency Rudder.

ALL boats should be provided with emergency rudders. One never knows just when the steering apparatus will get out of order.

The emergency is generally stowed away until it is needed. It should be strong and easily attached. The accompanying drawings show such a rudder in detail and designed especially for transom sterned boats with square, under or overhanging or V shape sterns.

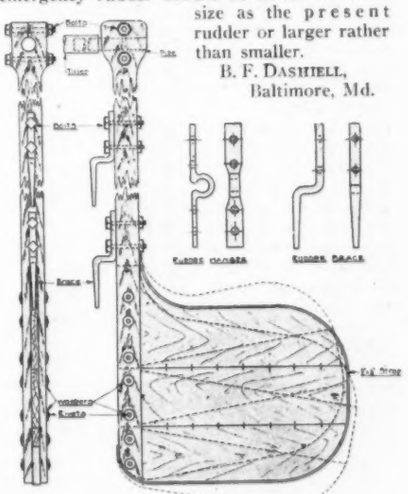
The post proper is of oak, two inches square with a ⅝-in. slot sawed up one end for the rudder. The rudder is made of ⅝-inch cypress or pine and fastened firmly into the slot in the post with copper rivets burred over copper washers. A ⅝-inch strip of iron or brass is screwed all around the edge of the rudder and up part way on the post. The lateral edges of the pieces in the rudder are drawn together with large copper staples.

The rudder braces and hangers can be made or purchased as desired; select those which are easily operated when attaching rudder.

The top of the rudder post shown herewith is enlarged and has 6 inch length of 1 inch pipe passing through. A detachable pipe tiller should be made to fit over this length of pipe.

It is necessary to have the rudder hangers fastened to the stern permanently. The emergency rudder should be about the same size as the present rudder or larger rather than smaller.

B. F. DASHIELL,
Baltimore, Md.



Cedar and oak copper-fastened emergency rudder.

A Folding Rudder.

THE term emergency implies the means of recovery from an accident; in this case loss of rudder. It also implies such a substitute as will permit the boat to reach port from any ordinary distance of motor boat cruising. The emergency rudder, must therefore, have characteristics which will cover all these points.

A boat may run many miles using a bucket in a rope sling or basket as a drag and 8 foot oars—rather risky business as the bucket may break loose. It must be in a true caging of rope and be dropped first on one then on the other side of the boat in accordance with the course. Naturally, a true course cannot be held with this method, but a harbor may be reached with security.

A 16-foot oar with a rope lashing fastened to it in a chock is a very good emergency rudder. The sling may be thrown over the stern bitt of the boat, but its merits are only strength and ease of attachment. It does not look well and cannot be stowed, but must be kept lashed to the top of the cabin.

The following design for a folding rudder will be found convenient. A slide rudder hanging, or other type of hanging, must be fastened to the transom. Such may be secured of any ship chandler. The rudder in type must be an out board visible rudder, with a tiller. The length of the rudder must be from a suitable point above the level of the top of the stern bitt to the position of the former rudder skeg. Let us assume that this distance is 5 feet and that 2½ feet of the rudder are under water. A rudder 20 to 24 inches wide is none too large, and by being folded down the middle may be made easy of stowing within the ordinary locker, which is rarely less than 6 feet in length.

The quality of folding is provided by two heavy strap-hinges securely screwed to the rudder, which should be made of 2-inch oak brought to a fairly sharp edge forward and aft of the under water portion. On the opposite side of the rudder, in the spaces between the hinges, may be placed two straps of iron running from edge to edge of the rudder, countersunk and provided with bolts, washers and nuts. When the rudder is folded one of these straps may be swung on one bolt and the other strap on a different bolt so that they may be brought into line with the folded-up rudder and not project irregularly. The extra bolts, nuts and washers may be tied to them.

The head of the rudder is provided with a square galvanized iron stock drawn out into two long strips well straddled down the stock of the rudder and riveted through and through the wood. The tiller may be made of two pieces of galvanized gas-pipe, one sliding into the other and kept from coming apart by a cap and a reducer. The outside pipe may be welded to a square rudder head. When telescoped it will be about 3 feet 6 inches long, and when extended, about 5 feet, thus giving plenty of leverage for the large rudder. With such an outfit a long cruise may be finished until a drydock is reached, and the presence of the outfit in the boat will cause very little inconvenience.

The prevention of accidents to rudders is important. No cruiser for family use should be floated without a suitable skeg protecting the rudder and if this skeg is made T-shaped in cross section the greatest amount of strength will be afforded by the same weight of metal. If the skeg is a long one, a vertical strut or brace should be placed in front of the rudder between the skeg and the horn timber. And last but not least, without charts no waters should be navigated known to be rocky. An ounce of prevention is worth a pound of cure.

CAPTAIN, N. Y. C.

Ventilating the Galley.

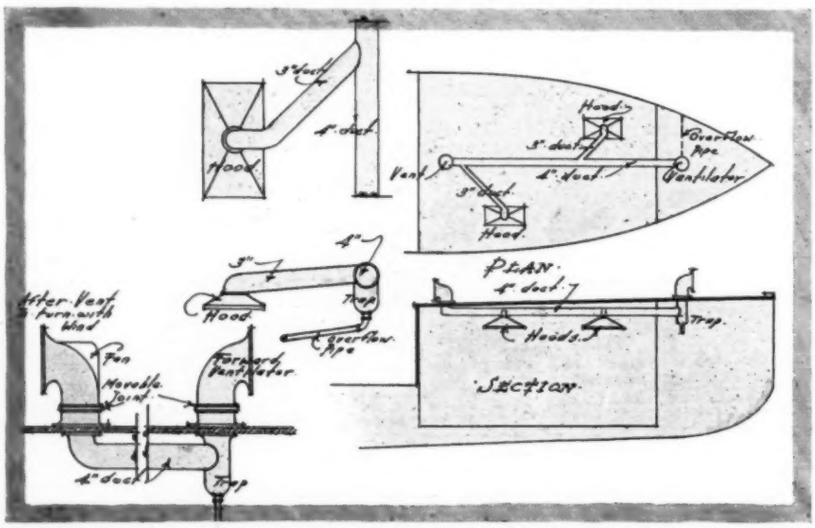
Means Whereby Cooking Odors May Be Prevented From Having Circulation Through the Boat. Several Methods Suggested Which Avoid Any Danger of Annoyance From Draughts and Rain.

Simple and Easily Installed.

(The Prize Winning Answer)

THE system of ventilation shown in the accompanying drawings, will, if properly installed, remove odors from the galley, be waterproof, and prevent draught. Moreover, it is not difficult to construct.

It depends for its circulation of air upon the center duct with the ventilators at each end, which ventilators have each a loose joint as shown, that allows the forward vent to be turned to face the wind, and the after vent to be self-adjusting by reason of a fan attachment which keeps it away from the wind. This arrangement provides a current of air through the main duct at all times from windward to leeward. This adjustment is necessary only when at anchor, as when under way the vents may be set as shown in the drawing, fore and aft.



Arrangement plan of vents and ducts for the galley of a small cruiser as suggested by J. A. Lockie.

In order to provide a positive circulation, the minor ducts must run into the main duct at an obtuse angle, have easy bends, and enter the main duct at the side (preferably) or the bottom. In operation, the main duct has at all times a current of air passing through it from fore to aft, which forms a suction through the minor ducts, drawing the foul air up through the hoods into it, and thence out through the ventilator. As the flow of air through the main duct is continuous there should be placed in each minor duct, a damper to control the system.

While the main duct should be about level, the minor ducts should have a pitch up as shown in the drawings. The location of the main duct may be at any point through the galley and does not necessarily have to be through the center as shown, but it should not be too close to the hoods, as this would make sharp angles, which would retard the circulation of the air. The location of the hoods should be in about the relation shown, but may be changed to suit the arrangement of the galley, one hood, of course, being over the range. As many hoods as necessary may be used, but two as shown would be right for a galley of usual size. By continuing the main duct other rooms may be ventilated by the same system and while the main duct should be as nearly straight as possible, yet it may have a change in direction to accommodate these rooms.

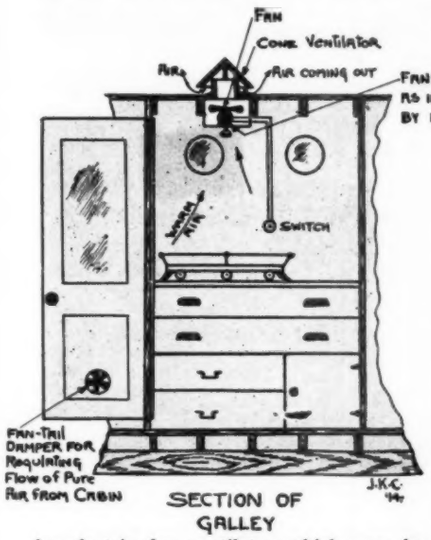
The ducts and hoods should be made of copper, but if desired, tin painted on both sides may be used. The ducts must be round in section and of the following sizes: Main duct, 4 ins. in diameter; minor duct, 3 ins. in diameter.

The hoods should be 9 ins. x 18 ins., although this size may be varied somewhat to suit conditions.

Although the ventilators are very nearly waterproof, a trap as shown may be placed under the forward ventilator, having an overflow piped outboard. This trap will prevent any water from entering the ducts and will make the system rainproof. As the ducts are more or less flexible, they should be held in place by copper or tin strap hangers fastened to the carlins or deck.

In case it is not desirable to use two ventilators above the deck, the after vent may be discarded and in its place

the main duct may be run out through the after bulkhead of cabin, a register face being placed over its end to make a finish. While this method will be satisfactory in most cases



SECTION OF GALLEY

An electric fan ventilator which may be switched on or off as required.

the two vent system is to be preferred, as it insures a more perfect circulation.

Finally if care is taken to have duct run with easy bends, have seaworthy joints, and with no sags this system will ventilate perfectly the most congested gallery.

J. A. LOCKIE, Washington, D. C.

An Electric Fan Ventilator.

AS it is only at certain times that the odors of cooking are very annoying, an electric fan ventilator can well be used without calling too often or too hard on the storage battery, especially since the ordinary method of ventilation can be used at other times.

My plan is to fasten a cast iron cone ventilator over a hole in the deck over the galley. Under this, or on the ceiling of the galley a circular cylinder is suspended. This cylinder is to be of galvanized iron, large enough to contain a small fan motor with a 5-in. fan, the fan lying horizontal and *with the fan uppermost.* Do not forget this as otherwise the fan will draw air down into the galley instead of out of it. The base of the cylinder should be made of a fantail ventilator like the one shown in the lower part of the door in the diagram. It should be adjustable by a handle so that it may be closed entirely if necessary. The switch for the motor should be brought down to within easy reach of the person cooking. A fantail ventilator, or one of the sliding type, should be put in the *lower* part of the door leading from cabin to galley.

Now, under ordinary conditions it will suffice to open the fantail ventilator in the ceiling and the one in the door. The warm air and cooking odors from the stove will naturally rise and pass out. Meanwhile pure air, but not cold air, will come in from the cabin. Or if the ventilator in the door be closed, it will keep in and eliminate drafts. By putting a tin deflector over the door ventilator the air will be directed to the floor and cause less of a draft. Rain cannot get in through the cone ventilator, as the question requires.

In case of bad odors, as fish, pork, burnt food, etc., the fan may be turned on for a few minutes to renew the air in the galley, and by leaving the door open, in fact the whole cruiser. A short service at such intervals will not interfere materially with the efficiency of the storage battery for lighting and ignition purposes.

I have seen this system operate successfully in a kitchenette and have no doubt of its successful operation in the small or medium-sized cruiser.

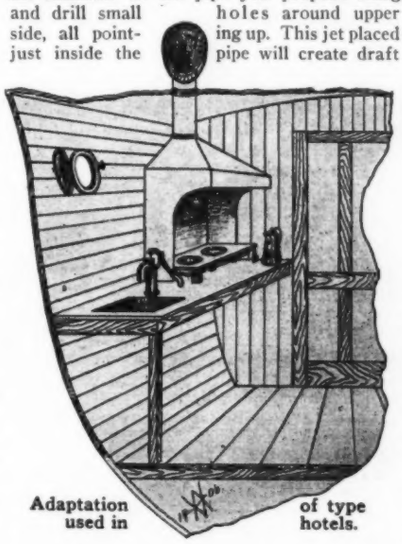
JOHN K. CHRISTMAS, Easton, Pa.

Odors Not Objectionable.

WHY a man in good health and hungry from the day's run should desire to avoid the odors from a nice beefsteak and a pot of coffee is too much for me.

The odors from the cooking in restaurants and hotels are carried away by a galvanized iron hood hung over the stove and extends down on the back and part of the sides. This hood is piped to the chimney so that the draft draws up the odors and keeps the place ventilated.

This same scheme on a smaller scale with slight variations will work out nicely for ventilating the galley on a motor boat. There is seldom a boat provided with a galley or stove that has not compressed air for the whistle. Here is your draft. Bend a piece of annealed tubing to form a circle from half to two-thirds the diameter of the pipe you propose using and drill small holes around upper side, all pointing up. This jet placed just inside the pipe will create draft



Adaptation of type used in hotels.

enough (when the air is on) to quickly remove all odors, and a hood (described below) over the stove will collect the odors. A hood ventilator attached to the pipe on deck will prevent the entrance of rain or spray. It can always be turned away so that the wind helps create a suction. If no air should be available an extra length of pipe may be used on deck.

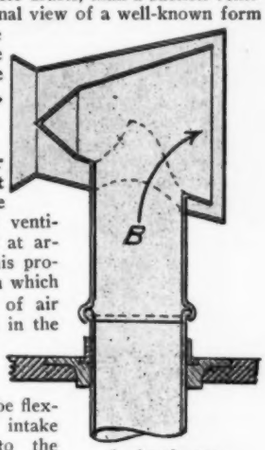
There is no chance for drafts with this outfit and the ventilator can be removed and the cap put on when not in use.

A tinsmith will make the outfit for you at slight cost or you can make it yourself. The construction is simple. The hood must be cut at the back, lapped over and riveted. Then cut the corners, fold down and rivet to form a rim two or three inches wide. The back is a sheet, but square at the corners to form the sides, which are curved for efficiency as well as appearances. To avoid sharp edges, a wire may be laid inside and the edges turned over it, thus making the edges stiffer and adding to the appearance.

W. B. MOORES, Newburg, N. Y.

The Suction Ventilator.

THERE is nothing which will ventilate a galley more effectively, without creating objectionable drafts, than a suction ventilator. A sectional view of a well-known form of such a device is shown in the sketch. The outside air passes into it through the outer shell of ventilator, entering at arrow A, and this produces a suction which causes a flow of air or other gases in the direction of the arrow B. The suction pipe may be flexible and its intake end carried to the most convenient point to draw off the odors of cooking. This is the most effective means for ventilating near an alcohol or similar stove without disturbing its flame.



A simple suction system.

E. W. MARSHALL, N. Y. C.

No Complicated Fittings.

THE system as hereinafter described may be used on practically any boat, the dimensions varying according to the size of the galley, but it may be taken as a standard that a galley measuring 5′ 5″ x 6′ x 6′ 3″ headroom would require a forward ventilator of 15″ diameter with a 5″ duct, and after ventilator about 15″ across.

The intake faces the bow of the boat so that it will have an air pressure to force the fresh air through the room. It is made from furnace hot-air pipe because this is rectangular and will fit into the wall, thus taking up no space. At the top it is connected to the ventilator by a union that the furnace man will supply. The pipe extends to about two and one-half feet from the floor and should have the bottom pitch outward to give the fresh air a downward motion so that the galley may be cleansed from the floor up.

The outlet is simply a large ventilator of uniform cross-section set in the roof. It faces the stern to avoid air pressure. To give the best results, the outlet should have a cross-section area at least one-third larger than the flare of the intake.

The intake is placed in the corner and low in the room opposite the outlet so that the entire galley may be cleared of odors. The outlet is placed immediately over the stove because, by that arrangement, the odors from out getting into the room. These ventilators are shaped to keep out any but a driving rain.

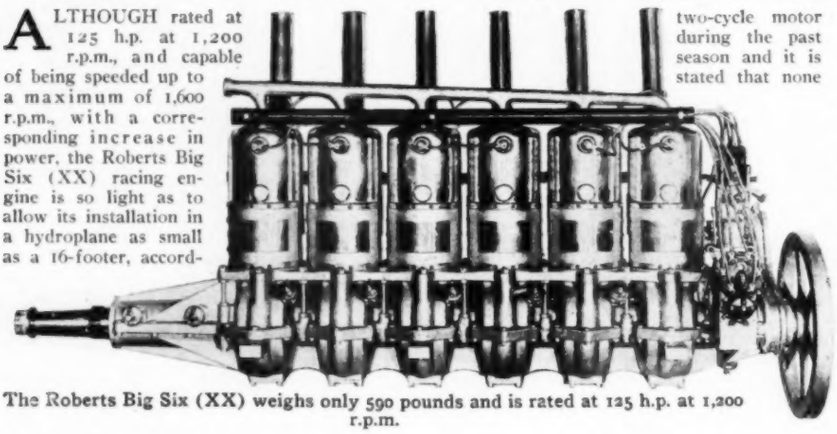
JAY BARTON, Columbia, Mo.

MARINE MOTORS

The Roberts Big Six.

One Hundred and Twenty-Five Horsepower Motor for Use in Boats as Small as a Sixteen-Footer. Cellular Bypass Designed to Eliminate Back-Firing in the Crank Chamber a Feature.

ALTHOUGH rated at 125 h.p. at 1,200 r.p.m., and capable of being speeded up to a maximum of 1,600 r.p.m., with a corresponding increase in power, the Roberts Big Six (XX) racing engine is so light as to allow its installation in a hydroplane as small as a 16-footer, according to the makers. Equipped as shown in the accompanying illustration, this motor, manufactured by the Roberts Motor Company, of Sandusky, O., weighs 590 pounds, or a little over four and two-thirds pounds per rated horsepower.



The Roberts Big Six (XX) weighs only 590 pounds and is rated at 125 h.p. at 1,200 r.p.m.

No radical changes have been made in this two-cycle motor during the past season and it is stated that none will be made for the coming year, inasmuch as the engine has offered no suggestion for improvements other than a recent increase in the size of the bypass plates which makes for more free operation and increased power. One of the most interesting features of Roberts motors is the construction of the bypass on which the manufacturers base their claim that they are "The motors that never backfire." This bypass consists of a series of alternate flat and corrugated plates about three inches long, which entirely fill the passage from the base to the cylinder and divide the transfer port into a large number of small passages or cells. These cells have such a large surface compared to the area of the passage through them that, it is claimed, should a flame start downward through them it is cooled and extinguished. It is also stated that these cells do not decrease the power of the motor in any degree, but, on the contrary, by vaporizing the mixture thoroughly render it more readily ignitable, and so save gasoline.

By the use of alloy weighing as little as aluminum, and having a greater tensile strength, the manufacturers have been able to keep the weight reasonable, at the same time pushing the horsepower up, and along the same line of endeavor they have used a hollow crankshaft.

Cooling of the motor is designed with especial reference to high-speed work, the pump being of large capacity and the stream of water being forced through the base and up around the exhaust ports, cooling them effectively and then passing around the cylinders and through the outlet.

The Harris Valveless Engine.

A Diesel-Principle Motor of the Two-Cycle Type Having Only One Cylinder-Head Opening. Starting Effected Without the Necessity of Injecting Air Into the Working Cylinders.

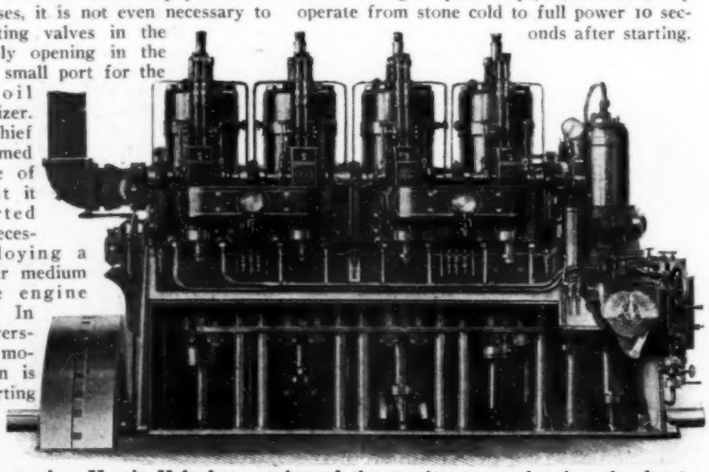
THE Harris Patents Company, of New York, and 328 Chestnut Street, Philadelphia, are offering the Harris Valveless engine of the Diesel type in various sizes for marine use. They are made in two, four, six and eight cylinders in three models, the lightest "two" developing 120 h.p. and the heaviest "eight" 1,600 h.p. Starting with the Diesel principle as a foundation, the Harris engine was designed with the object of producing a power plant free from complicated mechanism, and embodying the most desirable features of the best marine steam engine practice. The most novel departure in this engine from the original Diesel type lies in the step pistons, or enlarged extensions of the main pistons working in their own cylinders beneath the working cylinders. The step piston acts as the scavenging pump or low-pressure compressor, forcing out the exhaust gases and filling the working cylinder with pure air, and also in starting and reversing plays a prominent part as follows: Each scavenging cylinder on the movement of the starting lever either ahead or astern becomes immediately converted into an air motor by the automatic cutting out of the suction and delivery valves, the air starting valves coming automatically into play with the camshaft and keeping the engine running, owing to the compressed air from the storage tanks acting on the step pistons instead of the main pistons. Further movement of the handling lever opens the atomizers in the cylinder heads, and the fuel is supplied to the working cylinders, at which time they take up their regular cycle and the step pistons cease to act as a starting motor, but commence operating as low-pressure scavenging pumps.

The chief advantage claimed for this step piston is that by its use the necessity of sending compressed air at freezing temperature into the working cylinders for the purposes of starting and reversing is obviated, thereby eliminating any danger of cracking the heated cylinders by the sudden change of temperature.

The Harris engine being of the two-cycle type, there are no valves in the cylinder heads, and, owing to the use of the step piston for starting purposes, it is not even necessary to have air starting valves in the heads, the only opening in the heads being a small port for the admission of oil from the atomizer.

One of the chief advantages claimed for this type of motor is that it may be started without the necessity of employing a clutch or other medium separating the engine from its load. In starting or reversing the Harris motor, the action is similar to starting up a steam engine with an air pressure of from 175 pounds to 300 pounds. This air, when allowed to act on the step pistons, will turn the engine over so long as the tanks have a sufficient supply of air, and after the momentum is built up the oil can be given to the main cylinders, the air still being allowed to act on the step pistons. Thus, it is claimed, there is an abundance of power even before the engine has warmed up, thereby permitting it to start under full load.

The makers recommend these engines for boats making frequent stops, as, it is said, they operate from stone cold to full power 10 seconds after starting.



240 h.p. Harris Valveless engine of the marine type, showing the fronts removed. The columns and end plates may also be removed and the crank shaft rolled out on the floor.

Lathrop Four-Cycle Engines.

Made in Two, Three and Four Cylinders and Having Bore and Stroke of 5½ inches by 8 inches. Camshafts Run by Silent Chains Located Within the Crankcase to Insure Quiet Operation.

THE new Lathrop four-cycle engine of modern and sturdy construction, has a bore of 5½ in. and a stroke of 8 in., and develops its rated power at 350 to 400 r.p.m. The design has been carefully worked out to insure for this engine accessibility to all parts, a gas and oil-tight enclosed base, with camshafts and silent chain drives located within. The object of the manufacturers, the J. W. Lathrop Company, of Mystic, Conn., has been to secure an engine that will be quiet in operation, and possess reliability and long-wearing qualities under continuous service, with the best fuel economy.

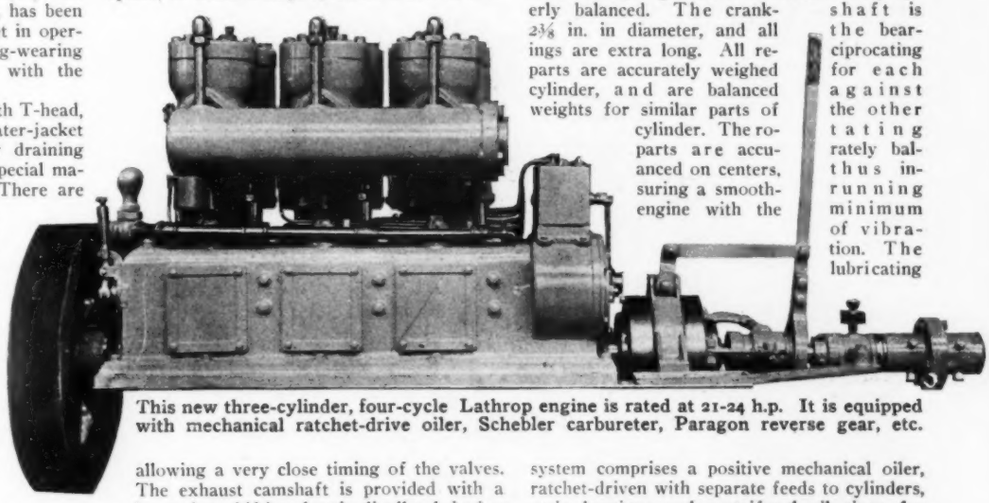
The cylinders are cast separately with T-head, and there are two plates on the water-jacket for cleaning out sediment and for draining purposes. Cylinders are bored on special machines, and ground to exact size. There are large water-jackets and extra large water spaces all around the valves.

The cylinder heads are cast separately for each cylinder and are easily removed. The makers consider it very desirable to have a removable cylinder head on each cylinder in order to inspect the cylinder and valves, and also to remove any carbon formed. The pistons, which are of extra length, are made of gray iron and are bronze-bushed for the wrist pin. The rings are of lap-joint construction, very accurately machined.

The crankcase is constructed of two separate castings, split on the center line of the crankshaft. The upper half has large separate hand-hole plates on both sides, through which inspection and adjustment may be easily and quickly made. The two camshafts, complete with their bearings, are easily removable through large hub holes on the rear of the upper half of the crankcase.

The camshafts are made of high-grade steel, and are driven by large silent chains operating in a spray of oil. Each shaft is fitted with a spider, to which a large sprocket is bolted, thus allowing a very close timing of the valves. The exhaust camshaft is provided with a lever for shifting longitudinally, bringing into action special cams, so that the compression is about two-thirds released and starting is made easy, and without escape of gases into the engine-room. The valves are of extra large diameter and short lift in 45-degree angle seats.

The connecting rods are fitted with removable bronze bushings spot-babbitted on the crank-pin end, and clamped to the wrist-pin on the head end. They have extra long center distance and large bearing surfaces. The crankshaft, made of 50-point carbon steel, heat-treated, is ground to exact size and properly balanced. The crankshaft is 2¾ in. in diameter, and all the bearings are extra long. All reciprocating parts are accurately weighed for each cylinder, and are balanced against the other cylinder, and are balanced rotating parts are accurately balanced on centers, thus insuring a smooth-running engine with the minimum of vibration. The lubricating system comprises a positive mechanical oiler, ratchet-driven with separate feeds to cylinders, main bearings and centrifugal oil rings for crank bearings. The bottom half of the crankcase is of special design to recirculate a given amount of oil, and spray all internal parts.



This new three-cylinder, four-cycle Lathrop engine is rated at 21-24 h.p. It is equipped with mechanical ratchet-drive oiler, Schebler carbureter, Paragon reverse gear, etc.

The New Fulton Models.

Built in a Very Complete Range of Sizes from a 20-28 H. P. "Four" to an 80-100 H. P. "Six." Substantially Constructed and Adapted for Use in Runabouts and Express Cruisers.

THE Fulton Manufacturing Company, of Erie, Pa., state that they are having great success with their line of 4-cycle, high-speed engines which were placed on the market the first of the year.

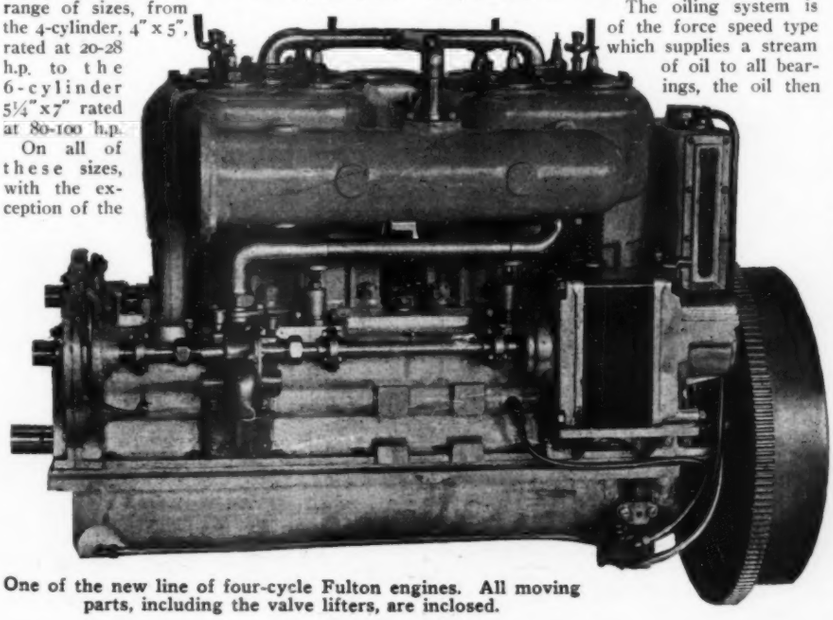
These engines, which have a great many distinctive features, are built in a very complete range of sizes, from the 4-cylinder, 4" x 5", rated at 20-28 h.p. to the 6-cylinder 5¼"x7" rated at 80-100 h.p.

On all of these sizes, with the exception of the 20-28 h.p., the cylinders are cast in pairs of the T-head type. All moving parts are inclosed—even the valve lifters—making a very clean and quiet-running engine. Another feature is that the entire reverse gear and thrust bearings are inclosed in a substantial aluminum case, thereby eliminating any oil-throwing.

The oiling system is of the force speed type which supplies a stream of oil to all bearings, the oil then draining into the crankcase where it is filtered and pumped back to the supply tank and used over again. It is a positive system designed to insure perfect lubrication under all conditions.

The connecting rods are drop-forged from steel and have bronze bushings in the wrist-pin end and die-cast interchangeable bearings in the crank-pin end. The crankshaft is of a one-piece drop-forging of high carbon steel, is of large dimensions ground to exact size, and is flanged for the fly-wheel. There is a main bearing between each pair of cylinders, and all bearings are die-cast of the best white bearing metal and are interchangeable. The crankcase is of aluminum and is cast with extended base for mounting the reverse gear as a unit. Ball thrust bearings of the highest grade are used, and the reverse gear employed is the Joe's duplex drive. For circulating the cooling water a rotary geared pump, all of bronze, is used. The ignition system as regularly furnished, consists of the Bosch high-tension magneto with Connecticut high-tension distributor. Regular equipment includes steel shaft up to 10 feet in length, bronze propeller, stuffing box, muffler, wiring, extension base, reverse gear, thrust bearings, etc.

These engines are especially adapted for use in runabouts, speed boats and express cruisers. They are very substantially built throughout and are intended to stand up under the hardest service. The materials entering into their construction are regarded as the best that can be procured. The workmanship is of the highest grade and each motor is tested under full load for several hours before shipping to insure its being perfect before leaving the factory.



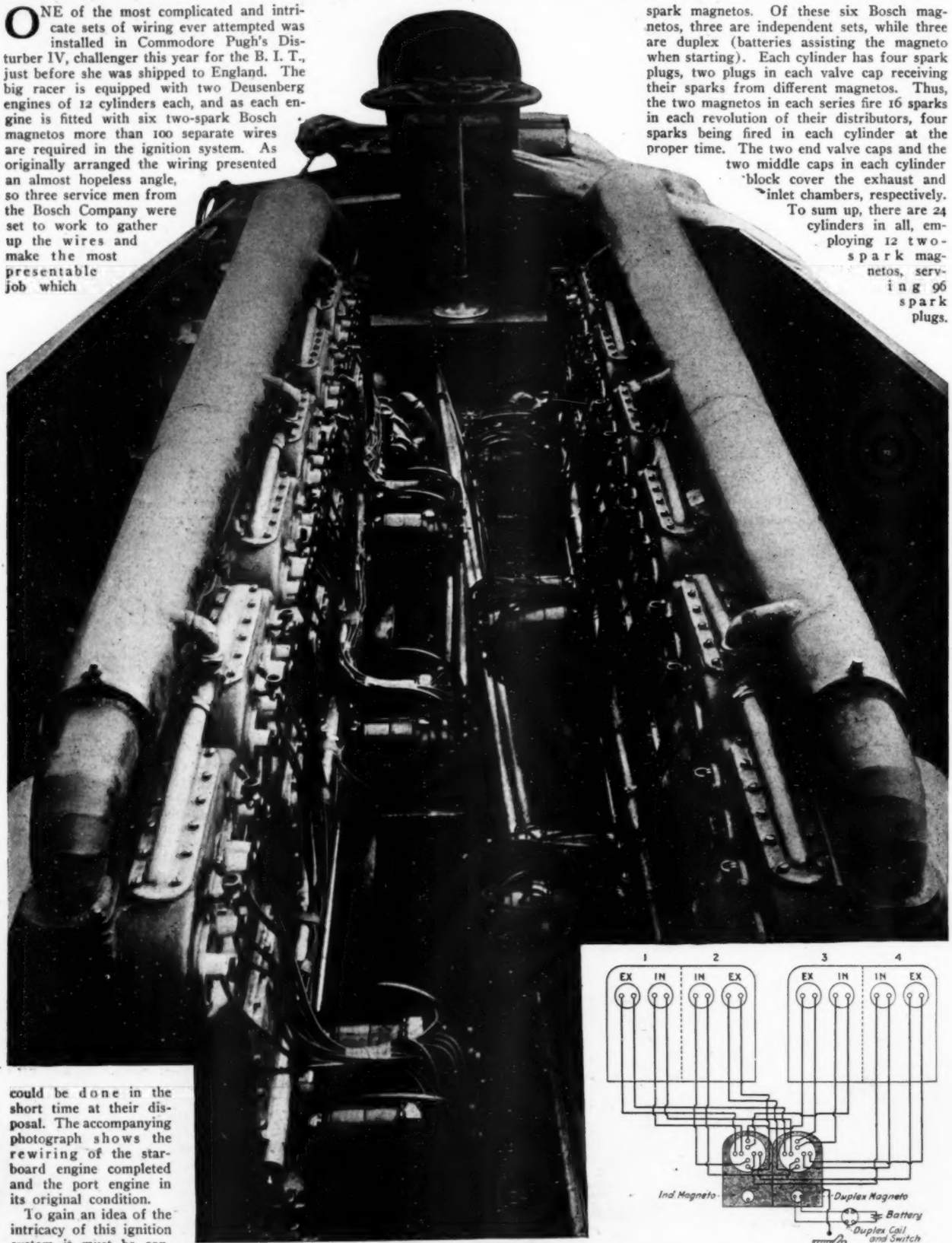
One of the new line of four-cycle Fulton engines. All moving parts, including the valve lifters, are inclosed.

100,000 Sparks Per Minute!

The Intricate Ignition System of the Twenty-Four Cylinder Power Plant in the B. I. T. Challenger. Twelve Two-Spark Magnetos, Six of Them the Duplex Type, Serving in All Ninety-Six Spark Plugs.

ONE of the most complicated and intricate sets of wiring ever attempted was installed in Commodore Pugh's Disturber IV, challenger this year for the B. I. T., just before she was shipped to England. The big racer is equipped with two Deusenberg engines of 12 cylinders each, and as each engine is fitted with six two-spark Bosch magnetos more than 100 separate wires are required in the ignition system. As originally arranged the wiring presented an almost hopeless angle, so three service men from the Bosch Company were set to work to gather up the wires and make the most presentable job which could be done in the short time at their disposal. The accompanying photograph shows the rewiring of the starboard engine completed and the port engine in its original condition.

To gain an idea of the intricacy of this ignition system it must be considered that there are twelve cylinders in each engine, and that each two sets of cylinder pairs is supplied with two two-spark magnetos. Of these six Bosch magnetos, three are independent sets, while three are duplex (batteries assisting the magneto when starting). Each cylinder has four spark plugs, two plugs in each valve cap receiving their sparks from different magnetos. Thus, the two magnetos in each series fire 16 sparks in each revolution of their distributors, four sparks being fired in each cylinder at the proper time. The two end valve caps and the two middle caps in each cylinder block cover the exhaust and inlet chambers, respectively. To sum up, there are 24 cylinders in all, employing 12 two-spark magnetos, serving 96 spark plugs.



Disturber IV's Ignition System.

The cylinders of these mammoth engines are cast in pairs, with the first and fourth valve caps covering the exhaust chambers and the two middle caps covering the inlet chambers. Two spark plugs are set in each valve cap and are fired from different magnetos. The accompanying diagram shows the wiring of one ignition unit for four cylinders. When it is considered that there are six such units in the total ignition system, an idea of its intricacy may be obtained.

From MoToR BoatinG Readers

MoToR BoatinG's columns are open to its readers, not only for asking questions, but for placing before other readers ideas, results of experience, opinions, etc., that should be interesting or helpful to them; but the editor will not, of course, be responsible for any opinions expressed or statements made in such communications. The name and address of the writer must necessarily be given in every case and return postage enclosed to make an answer by mail possible (no anonymous contributions will be considered for publication), but names will be omitted in publishing the letters and answers where desired. Through the correspondence department readers of the magazine may be of direct aid to one another in solving the problems of motor boating.

Motor Won't Run.

To the Editor of MoToR BoatinG, *Sir:*

I have a 19-footer, equipped with a 6 to 8 h.p. motor, two cylinders. I have put on an 18-inch wheel, 20 inches pitch, three blades. I tried to start the engine; she would go for about one hundred yards and then stop. She will always knock. I disconnected the engine from the propeller and had her running loose. She would go so fast that I could not even run her full speed, fearing some breakage would occur. She would run fine, without even misfiring, and she wouldn't knock with the engine running loose, no matter how far I advanced the spark. But when I connect it with the propeller she would run so slowly and knock that she stops after about one hundred revolutions. Sometimes she only gives four or five revolutions very slowly, knocks and then stops. Thinking it might be the propeller, I took her off and placed a 15-inch, 3-blade, 22-inch pitch, and she does the same thing.

I tried to adjust the vibrator to get a louder buzz. When I touch the vibrator of the first cylinder I don't feel any shock, but when I try to adjust the second, she gives me a shock. Will you please tell me why the engine knocks and runs slowly with the propeller and why she runs smooth and fast without the propeller, also why I get shocked on the second vibrator and not on the first? I have tried all kinds of gas and air mixture, but without success. Do you think those two propellers I tried are too big for that engine? They are both three-bladed.

The boat is 19 feet long, 4½ feet beam. It is a V-bottom boat. The engine is a two-cylinder, jump-spark, 6 to 8 h.p.

S. A., New York City.

[We do not believe that it is due to the size of the propeller in the least. Other causes which it may be attributed to could be: Poor compression, wrong mixture, leaking ignition, poor base compression or mis-alignment between the engine and propeller shaft. Any of the first four defects would allow the motor to run idle without much loss of power, but when you attempt to run it slow under power, these errors become very much magnified, and if bad ones are sufficient to cause the motor to stop after a few revolutions. If the engine is not lined up correctly this will also cause trouble, as you probably know. It may be that the size of the shaft hole is too small, and after the boat has been in the water for some time, the wood has swelled around the shaft, causing it to bind in some places. You can detect this by turning the propeller shaft over by hand. This should turn very easily indeed—almost without effort. If this does turn easily, and considerable effort is required to turn it over after the shaft and motor are connected together, then the trouble is probably in the alignment between the shaft and the motor. It may be that this was lined up before the boat was placed in the water and that the hull has changed its shape since that time. An installation of a flexible coupling between the engine and the propeller shaft would take care of this.

When the motor is running slowly under power, it is not necessary to have the needle valve as far open as when the engine is running fast without any load. If the needle valve happens to be adjusted to allow the motor to run idle at full speed, probably if you attempt to run her slow under load, it will become flooded with gasoline and gradually slow down and stop. The remedy is obvious and requires nothing but closing the needle valve.]

Photograph by Brown Bros.

Aqua-planing through Hell Gate.

Speed Laws Governing Motor Boats.

To the Editor of MoToR BoatinG, *Sir:*

Can you give me some information concerning laws on water relative to speed limits? There is a number of motor boats on the Lehigh River, Pa. On entering the city of Allentown's limits, we are forced to run very slowly owing to complaints of canoeists because of the swell caused by motor boats. Also parties that have their boats tied up to the shore complain about their boats being rocked by the waves from the motor boats.

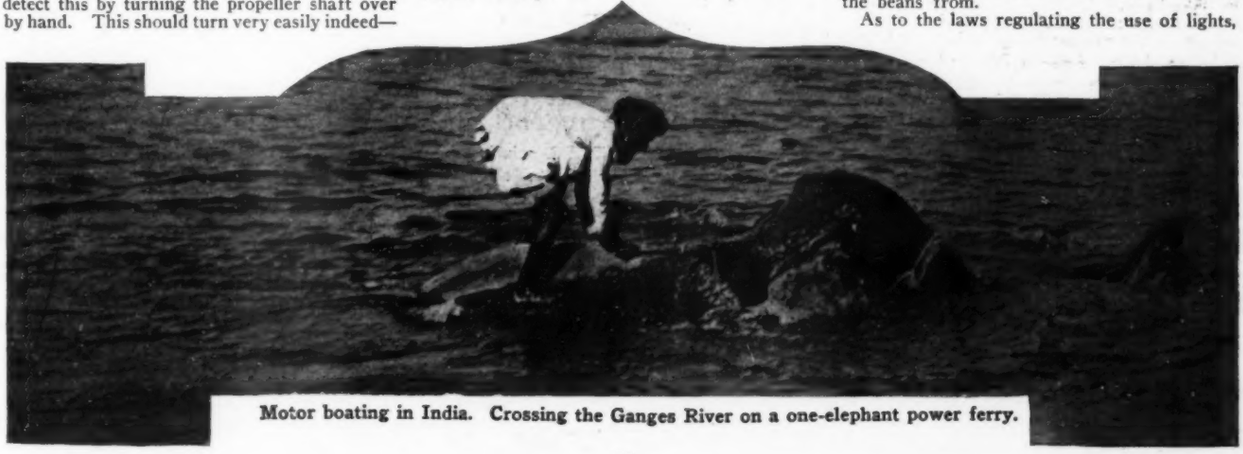
What are the laws about lights on motor boats, rowboats and canoes? A number of us motor boating fellows, all subscribers to your paper, would like you to give us some dope on this. Can the city officials arrest us for running fast, say, about 15 miles per hour? The river is about 300 yards wide at the city limits.

L. J. G.,
Fullerton, Pa.

[We would say that neither the Government Rules of the Road, nor, so far as we can find out, the State laws of Pennsylvania set any restriction on the rate at which a motor boat may travel. We believe, however, that in narrow waterways passing through cities, the city authorities, for the protection of boats lying along wharves have the authority to enact local laws as they see fit. In New York State and we presume in Pennsylvania, any person whose boat lying at a wharf receives damage from the swell of a passing vessel may institute suit in the civil courts against the owner of that vessel and collect the amount of the damage. As an instance, you will remember the newspaper reports that the Hamburg-American Line had to pay damages to the tune of about $20,000 when the suck of the Vaterland's propellers sank a coal barge and tore other vessels loose from their moorings.

Aside from these considerations, however, we think that as a matter of common courtesy every motor boat owner should slow down when passing small boats or through an anchorage. If the conditions are ever reversed and you find yourself at anchor cooking up a little grub when an alleged twenty-miler goes by and tosses you around a little, you'll have to admit that the bilge is a poor place to serve the beans from.

As to the laws regulating the use of lights,



Motor boating in India. Crossing the Ganges River on a one-elephant power ferry.

100,000 Sparks Per Minute!

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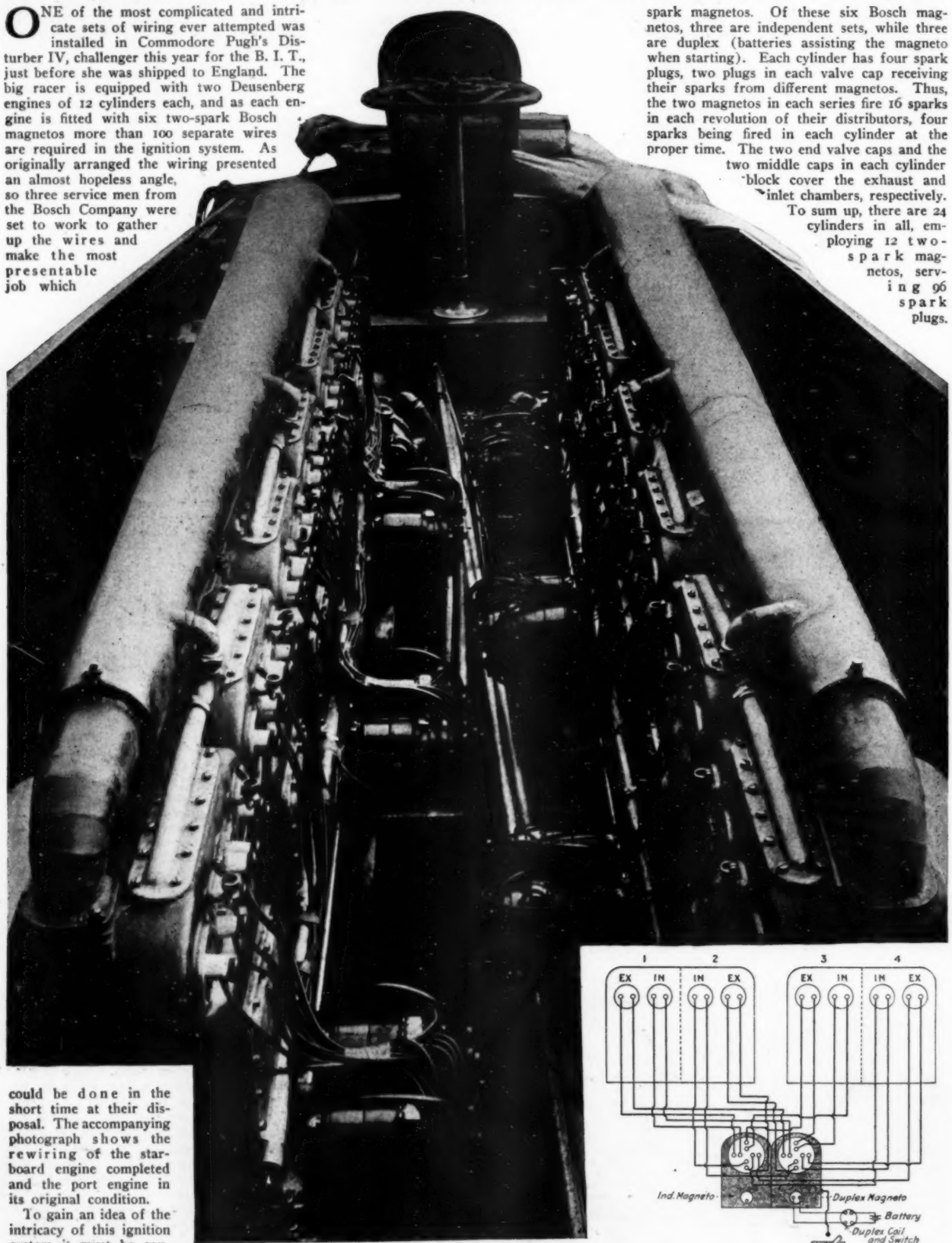


Disturber IV's Ignition System.

The cylinders of these mammoth engines are cast in pairs, with the first and fourth valve caps covering the exhaust chambers and the two middle caps covering the inlet chambers. Two spark plugs are set in each valve cap and are fired from different magnetos. The accompanying diagram shows the wiring of one ignition unit for four cylinders. When it is considered that there are six such units in the total ignition system, an idea of its intricacy may be obtained.

From MOTOR BOATING Readers

MoToR BoatinG's columns are open to its readers, not only for asking questions, but for placing before other readers ideas, results of experience, opinions, etc., that should be interesting or helpful to them; but the editor will not, of course, be responsible for any opinions expressed or statements made in such communications. The name and address of the writer must necessarily be given in every case and return postage enclosed to make an answer by mail possible (no anonymous contributions will be considered for publication), but names will be omitted in publishing the letters and answers where desired. Through the correspondence department readers of the magazine may be of direct aid to one another in solving the problems of motor boating.

Motor Won't Run.

To the Editor of MoToR BoatinG, *Sir:*

I have a 19-footer, equipped with a 6 to 8 h.p. motor, two cylinders. I have put on an 18-inch wheel, 20 inches pitch, three blades. I tried to start the engine; she would go for about one hundred yards and then stop. She will always knock. I disconnected the engine from the propeller and had her running loose. She would go so fast that I could not even run her full speed, fearing some breakage would occur. She would run fine, without even misfiring, and she wouldn't knock with the engine running loose, no matter how far I advanced the spark. But when I connect it with the propeller she would run so slowly and knock that she stops after about one hundred revolutions. Sometimes she only gives four or five revolutions very slowly, knocks and then stops. Thinking it might be the propeller, I took her off and placed a 15-inch, 3-blade, 22-inch pitch, and she does the same thing.

I tried to adjust the vibrator to get a louder buzz. When I touch the vibrator of the first cylinder I don't feel any shock, but when I try to adjust the second, she gives me a shock. Will you please tell me why the engine knocks and runs slowly with the propeller and why she runs smooth and fast without the propeller, also why I get shocked on the second vibrator and not on the first? I have tried all kinds of gas and air mixture, but without success. Do you think those two propellers I tried are too big for that engine? They are both three-bladed.

The boat is 19 feet long, 4½ feet beam. It is a V-bottom boat. The engine is a two-cylinder, jump-spark, 6 to 8 h.p.

S. A., New York City.

[We do not believe that it is due to the size of the propeller in the least. Other causes which it may be attributed to could be: Poor compression, wrong mixture, leaking ignition, poor base compression or mis-alignment between the engine and propeller shaft. Any of the first four defects would allow the motor to run idle without much loss of power, but when you attempt to run it slow under power, these errors become very much magnified, and if bad ones are sufficient to cause the motor to stop after a few revolutions. If the engine is not lined up correctly this will also cause trouble, as you probably know. It may be that the size of the shaft hole is too small, and after the boat has been in the water for some time, the wood has swelled around the shaft, causing it to bind in some places. You can detect this by turning the propeller shaft over by hand. This should turn very easily indeed—almost without effort. If this does turn easily, and considerable effort is required to turn it over after the shaft and motor are connected together, then the trouble is probably in the alignment between the shaft and the motor. It may be that this was lined up before the boat was placed in the water and that the hull has changed its shape since that time. An installation of a flexible coupling between the engine and the propeller shaft would take care of this.

When the motor is running slowly under power, it is not necessary to have the needle valve as far open as when the engine is running fast without any load. If the needle valve happens to be adjusted to allow the motor to run idle at full speed, probably if you attempt to run her slow under load, it will become flooded with gasoline and gradually slow down and stop. The remedy is obvious and requires nothing but closing the needle valve.]

Photograph by Brown Bros.

Aqua-planing through Hell Gate.

Speed Laws Governing Motor Boats.

To the Editor of MoToR BoatinG, *Sir:*

Can you give me some information concerning laws on water relative to speed limits? There is a number of motor boats on the Lehigh River, Pa. On entering the city of Allentown's limits, we are forced to run very slowly owing to complaints of canoeists because of the swell caused by motor boats. Also parties that have their boats tied up to the shore complain about their boats being rocked by the waves from the motor boats.

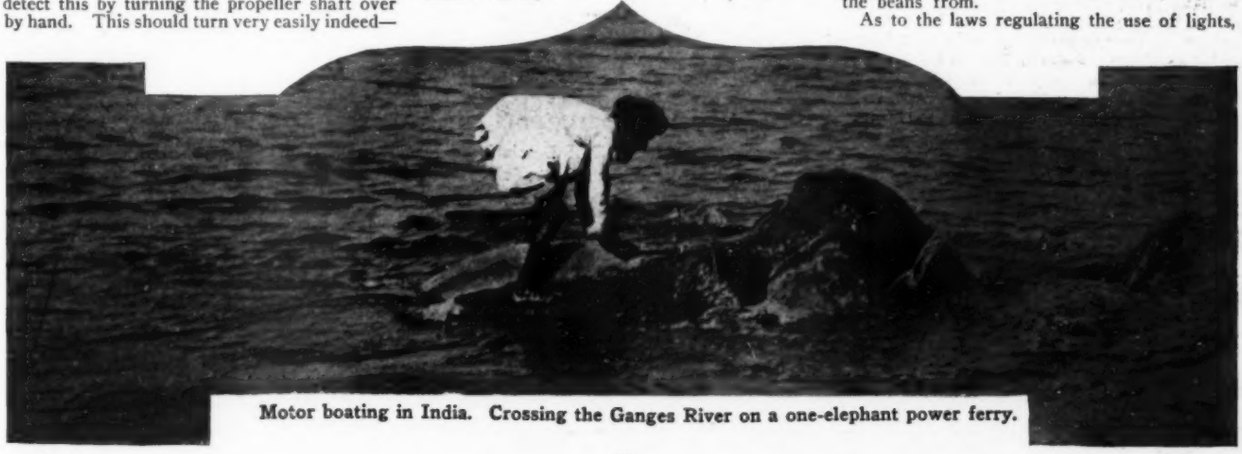
What are the laws about lights on motor boats, rowboats and canoes? A number of us motor boating fellows, all subscribers to your paper, would like you to give us some dope on this. Can the city officials arrest us for running fast, say, about 15 miles per hour? The river is about 300 yards wide at the city limits.

L. J. G.,
Fullerton, Pa.

[We would say that neither the Government Rules of the Road, nor, so far as we can find out, the State laws of Pennsylvania set any restriction on the rate at which a motor boat may travel. We believe, however, that in narrow waterways passing through cities, the city authorities, for the protection of boats lying along wharves have the authority to enact local laws as they see fit. In New York State and we presume in Pennsylvania, any person whose boat lying at a wharf receives damage from the swell of a passing vessel may institute suit in the civil courts against the owner of that vessel and collect the amount of the damage. As an instance, you will remember the newspaper reports that the Hamburg-American Line had to pay damages to the tune of about $20,000 when the suck of the Vaterland's propellers sank a coal barge and tore other vessels loose from their moorings.

Aside from these considerations, however, we think that as a matter of common courtesy every motor boat owner should slow down when passing small boats or through an anchorage. If the conditions are ever reversed and you find yourself at anchor cooking up a little grub when an alleged twenty-miler goes by and tosses you around a little, you'll have to admit that the bilge is a poor place to serve the beans from.

As to the laws regulating the use of lights,



Motor boating in India. Crossing the Ganges River on a one-elephant power ferry.

we would refer you to the pilot rules, two copies of which the law requires every motor boat to carry, page 24 of the June issue of MoToR BoatinG into which this matter was gone very fully, or a two-page illustrated article which appeared in the August issue of this magazine. We may say, however, in brief, that all motor boats under 26 feet in length (Class 1) are obliged to carry when under way a white light aft to be visible all around the horizon, and a combination light showing green to starboard visible from dead head to two points abaft the beam, and a red light to port also visible from dead ahead to two points abaft the beam. Motor boats from 26 to 40 feet (Class 2) in length carry a white bow light visible from dead ahead to two points abaft the beam on each side, a green light on the starboard side visible from dead ahead to points abaft the beam on that side, a red light to port similarly arranged (these two lights to be suitably screened so that they may not be seen across the bow and a white light aft, placed higher than the bow light and visible all around the horizon. Motor boats from 40 to 65 feet (Class 3) carry the same light except that the law provides that they shall be of larger size.

Article 7 of the "Rules of the Road—Inland" requires that "Rowing boats whether under oars or sail shall have ready at hand a lantern showing a white light which shall be temporarily exhibited in sufficient time to prevent collision." This regulation may also be applied to canoes.

In conclusion, we would say that if we were in your place we would find out from the city authorities whether they have any ordinances regulating the speed of motor boats before we had any run-in with the local police.]

A Double-Opposed Motor.

To the Editor of MoToR BoatinG, *Sir:*

As a constant reader of your magazine, I would be greatly obliged if you could give me any information which would be of assistance to me in installing an engine in my boat.

I have a motor boat of the V-bottom type, 21 ft. long by 4 ft. 6 in. wide. The motor which I intend installing is of the two-cylinder, four-cycle, double-opposed, horizontal type. As far as I can ascertain, the cylinder dimensions are: 4 in. bore by 4½ in. stroke. It is, of course, water-cooled; and the weight without fly-wheel, is about 150 pounds. There does not appear to be any manufacturer's name on the engine; I should judge it to be about three or four years old, although in good condition.

The man from whom I purchased this engine obtained it in a bailiffs' sale, and knows nothing about it, although he stated that he was informed it would develop 12 h.p. To me, this seems a little too much to expect, and I would be glad to have your advice in this connection.

Could you also inform me of the proper size wheel to use? The boat is lightly built and was intended for speeding purposes, although soundly constructed. The engine used in this boat last year was a three-cylinder of 21 h.p., and I find it necessary to raise the base slightly to accommodate the new engine. I am, therefore, installing a flexible coupling. I understand that this should be placed between the reverse gear and the propeller shaft, with a bearing between the gear and flexible coupling. Is this correct?

J. G. C., Toronto, Canada.

[Your motor should develop about 10 h.p. at 900 r.p.m. and about 12 h.p. at 1,100 r.p.m. Just what speed the motor is designed to run at, we cannot of course say, as this depends entirely upon the design of the particular motor, size of the moving parts, area of the valves, etc.

The proper wheel for a 10 h.p. motor at 900 r.p.m. in a 21-foot V-bottom boat would be one having three blades 14 inches in diameter, by 18 inches pitch. This should give you a speed of about 12 miles per hour.

We believe the use of a flexible coupling as you propose is entirely feasible, but we do not believe it necessary to use a bearing between the gear and coupling, provided the angle is not excessive.]

An Interesting Model.

To the Editor of MoToR BoatinG, *Sir:*

Am sending you a view of a little model I made, which is fully equipped. The hull is made of mahogany ¼ of an inch, and the deck is made of the same material, the brass railing is 3/16 of an inch, it is 4 feet 6 inches long, 12 inches wide. I made every piece of the brass fixtures, taking me three months to complete. The boat runs with a small electric dynamo. I have it displayed in the window which attracts everyone who sees it. To really appreciate this model you would have to see the original, but I think the picture will give you a fair idea of what it is like. The deck is made of one strip of mahogany and one of ash; the hood is also made of the same material. F. L. T., Donaldsonville, La.

Stopping Up a Cylinder Crack.

To the Editor of MoToR BoatinG, *Sir:*

I have a light, 16 ft. V-stern steel runabout equipped with a 2½ h.p. motor running at 750 r.p.m. The propeller furnished was a 12-in., with 17 in. pitch, 2-bladed. I am of the opinion that this is rather too large for this motor, as I have difficulty in controlling on low speed, and the engine stalls at times when turning the boat. Also, the vibration is excessive at high speed.

A neighbor of mine wants me to ask a propeller question for him. He has a 21-ft. compromise stern boat of about 5-ft. beam, the hull being rather heavy. What would be a suitable propeller for a 5½ h.p. motor turning between 700 and 750 r.p.m.? A two-blade weedless is preferred.

How can I stop a small flaw or crack in the base of a 2-cycle motor? The hole is large enough to permit a fine spray of gas to blow out. Would mending with Solderall be suitable, or could I use an iron cement? If so, where can I procure same? How is it applied? I would prefer one that does not require heating.

W. K. B., Ann Arbor, Mich.

[We believe that the proper wheel for your 16 ft. V-bottom runabout, equipped with a 2½ h.p. motor, running at 750 r. p. m., would be one having three blades 12 inches in diameter, by 12-inch pitch. While a three-bladed wheel may not give you any more speed than one with two blades in an installation of this kind, yet it will be decidedly smoother running and cause much less vibration. The proper wheel for your 21-ft. boat with a 5½ h.p. motor, turning at 750 r.p.m. would be one having two blades 14 inches in diameter, by 15 inches pitch.

In regard to stopping a crack in the base of a 2-cycle motor, while this may be done with Solderall with more or less degree of satisfaction, yet we believe Smooth-on Cement will give you a much better job. The cement should be jammed into the crack tightly and it as well as the surrounding metal should be heated with plumbers' torch for a quarter or a half an hour to insure the setting of the cement. This latter becomes practically integral with the cast iron and can withstand considerable pressure. A cement may also be made up composed of three parts of iron filings to one of salammoniac, made up into a paste with salt water. The filings should be made with a fine file from grey cast iron. Two or three days will be required for this to set, after which it will stand any amount of pressure which it will be normally subjected to in the base of an engine. Still another method of correcting this would be to take the motor out of the boat to some shop equipped with a welding outfit, but you no doubt have considered this method and discarded it as impracticable.]

Caulking Suggestions.

To the Editor of MoToR BoatinG, *Sir:*

In the July number of MoToR BoatinG, A. P., New York, asks how to stop leaks in a hull which caulking failed to remedy.

I would like to offer for comment, a plan which I followed to stop the leaks in the first six feet of my 25-foot by 4-foot displacement hull, planked with ⅜ inch cedar.

I first put butt straps along the seams inside, then caulked her thoroughly and applied a couple of coats of red lead. I then cemented a piece of heavy cotton to the hull with a viscous mixture of hot pine pitch and boiled oil. Over this I nailed a sheet of 10-ounce soft copper sheeting, working the pliable copper to the lines of the boat by rubbing with a stick, folding over, pounding flat and nailing any wrinkles or gathers with copper nails.

This method absolutely stopped all leaks in that portion of the hull.

It would be rather expensive to cover the whole bottom of the hull in this way, as copper will cost from 20 to 25 cents per pound, but I think that Mr. A. P. will find most of the leaks near the keel and if a 30 or 36 inches-wide plate were attached in this manner, 80 or 90 per cent. of the leaks would disappear.

Trouble in Starting Motors

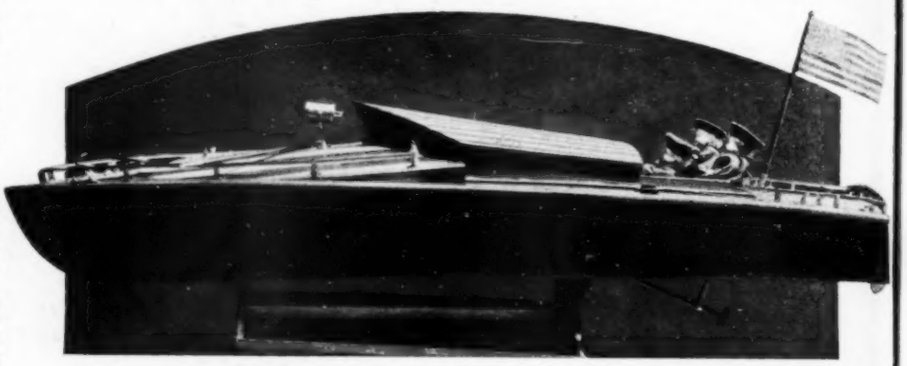
To the Editor of MoToR BoatinG, *Sir:*

I have a 5 h.p. engine which gives me a little trouble in starting it. I put oil in the gasoline, in the oil cups and sometimes in the base. Do you think the oil causes that? Once I get her started she keeps up without misfiring. Will you please tell me the best way to avoid this, and if I should use oil cups including the oil in the gasoline?

P. F., New York City.

[While we believe that having oil in the gasoline does make the motor somewhat harder to start, than when no oil is used at all, yet all the trouble you are experiencing can hardly be attributed to this cause. Trouble similar to this seems to be chronic with some motors, and its cause can be traced to nothing else than the design of the motor itself. However, we believe that if you will put a little lubricating oil through the petcocks and turn the fly-wheel over a few times before priming the motor, you will find that she starts more readily than when simply priming with gasoline alone.

It may be that grease cups on the bearings would help somewhat, but probably not to very great extent. The advantage of these is that they can be screwed down before starting, which will give you better compression in the base of your motor, while it is being turned over by hand. The drawing in of a slight amount of air into the cylinder through the petcocks when you are turning the fly-wheel over slowly by hand may be necessary to get the right mixture for starting.]



A mahogany and ash model powered with an electric motor. This interesting little craft is 4 feet 6 inches long and 12 inches wide. It is described on this page.

Charts of the Hudson River.

To the Editor of MoToR BoatinG, *Sir:*

I have been a constant reader of MoToR BoatinG, and I am very much interested in motor boating.

Three young men and myself are planning for a trip up the Hudson River. We want to start from Jamaica Bay and go up the Hudson River to Lake Luzerne in a launch which one of the party owns.

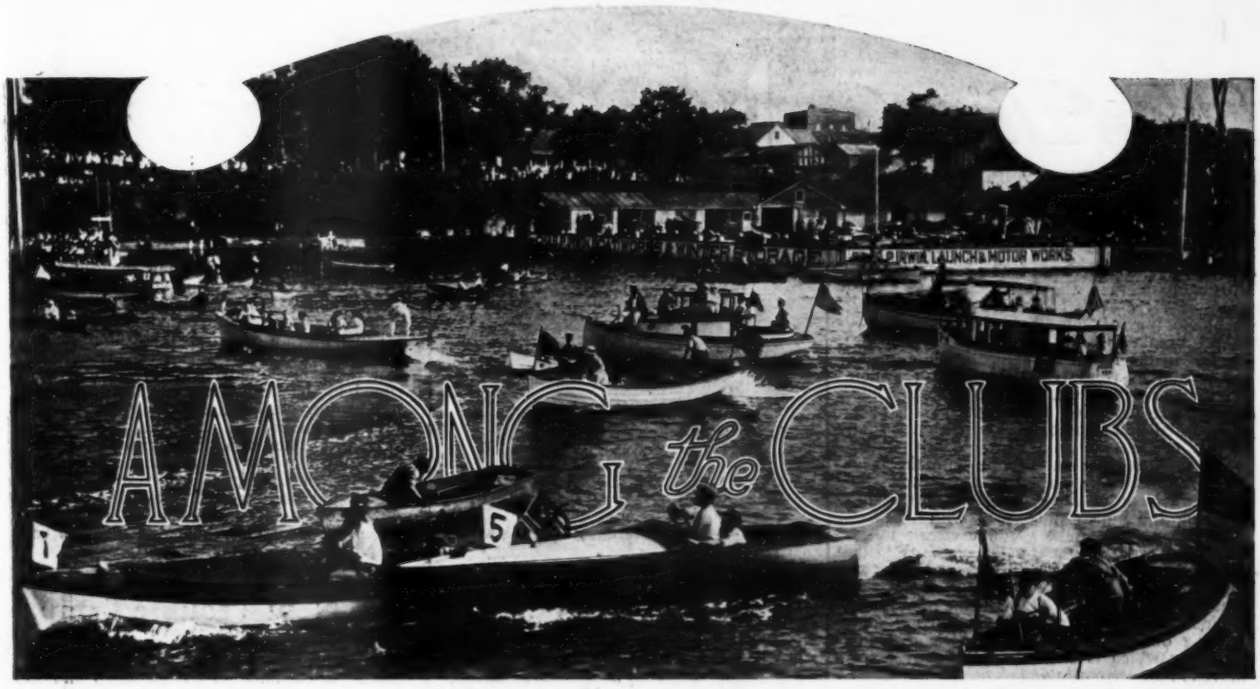
Would you kindly tell me where I could obtain a map showing the course we would take to get from Jamaica Bay to Lake Luzerne also the pilot regulations, such as the necessary lights to be carried on board, and the meaning of the different whistles and their answers, etc.

E. W. S., New York City.

[We would suggest that you refer to the July, 1913, issue of MoToR BoatinG, where a complete chart of the Hudson River was shown.

You might also obtain from the Coast and Geodetic Survey Department of Commerce, Washington, D. C., a catalogue of the charts issued by this department, and from this choose the necessary charts covering the proposed trip. This catalogue can be obtained free of charge upon request to the above-mentioned department.

A copy of the Pilot Regulations can be obtained from the Custom House in this city, or from the Steamboat Inspection Service, Washington, D. C.]



United States Power Squadrons.

The United States Power Squadrons movement is showing a healthy growth, and since the opening of this year's season, the following local squadrons have been added to membership by the Governing Board: Power Squadron of New Haven, Narragansett Bay Power Squadron, Power Squadron of the New Bedford Yacht Club, Power Squadron of the Savin Hill Yacht Club, and Power Squadron of the Quincy Yacht Club. Admission to membership in the Squadrons implies that at least ten boat owners in any boating club have signified their intention of becoming part of the United States Power Squadrons, and having individually passed the required examinations to determine their fitness as seamen, have been elected to membership.

The following appointments have been made by order of the Chief Commander since May 20th: Messrs. N. L. Stebbins, C. F. Chapman and W. A. Hopkins have been appointed as the Committee on Instruction and Examination, to hold office until the annual meeting in 1915. Mr. Stebbins, whose address is 132 Boylston street, Boston, Mass., is the chairman of this committee. Captain R. S. Campbell, and Messrs. Charles Longstreth and Thomas B. Bowes, have been appointed as Board of Instruction and Examination to act in District No. 6, Sandy Hook to Cape Henry, including Delaware River and Bay, and Chesapeake Bay and all rivers entering therein. For further information about this board, address Mr. Bowes, Lafayette Building, Fifth and Chestnut streets, Philadelphia, Pa. In addition to Flag Officer Stebbins, the following have been appointed to serve on the staff of the Chief Commander and to perform such duties as he may designate: Aides, Messrs. Arthur P. Homer and William A. Hopkins; Paymaster, Mr. Charles O. Whitten. Captains A. Swanson, L. Curtiss and L. H. Turner have been appointed as Board of Instruction and Examination for District No. 7, San Francisco Bay and contributory rivers entering therein. Captain L. Curtiss, 310 California street, San Francisco, Cal., should be addressed for further information about this Board.

* * *

The New York to San Francisco Race.

The great race from New York to San Francisco under the auspices of the Panama Exposition which is to be run in 1915 is being developed by the two committees appointed. The race has been placed in the hands of the California Section of the A. P. B. A., composed of the Corinthian Y. C., of San Francisco; Oakland Y. C., of Sacramento; Pacific M. B. C., of Belvidere; Sacramento Y. C., of Sacramento, and the San Francisco Y. C. The exposition authorities have awarded prizes amounting to $10,000 which prizes are permitted by the association by reason of that section of their rules which allows the giving of prizes for sea races of over 600 miles. The men composing the Eastern Committee are as follows: Thomas B. Bowes, Philadelphia, Pa., chairman; Charles F. Chapman, Hudson River Y. R. A.; E. Claude Headley, Delaware Y. R.A.; Ruben B. Clark, secretary Racing Commission, A. P. R. A., and an unnamed member from the South Jersey Y. R. A. The men on the Western Committee are: I. H. Cory, chairman, California Section, A. P. B. A., and Lieut.-Commander C. W. Woodward, U. S. N.

At a recent meeting held in Philadelphia by the Eastern Committee preliminary action was taken in fixing the minimum and maximum length of boats allowed to enter. No boat under 55 feet or over 75 feet load waterline length will be eligible for entry. It was also definitely decided that an allowance of 72 hours' stoppage at all ports, exclusive of the canal, shall be given. If contestants do not use up all of the 72 hours, only the actual hours will be deducted, while if they use up more than 72 hours, only the 72 hours will be deducted from their running time. A certain amount of sail will probably be allowed. All fuel is to be carried in fixed tanks, but no built-up tanks will be allowed. Ratings on Diesel and semi-Diesel engines have not yet been decided, but gasoline engine ratings will probably remain the same.

Jay Dee Ess, owned by Commodore J. D. Swoyer, of the Chelsea Y. C., and designed by Adolph Apel, winner in the hydroplane class in the Atlantic City M. B. C. races. She is classed as a 50-miler.

Kismet, owned by Frank Gorman, of the Ocean City Y. C., winner in the cruiser class rating over 45 in the South Jersey Y. R. A. races at the Atlantic City M. B. C.

* * *

Middletown Y. C. Long Distance Race.

Although the racing season is now drawing to its close, the members of the Middletown Yacht Club, of Middletown, Conn., haven't got over talking about their highly successful long distance race held on July 4th. The course ran from Middletown to Saybrook and out between the breakwaters; thence to and around Cornfield Point Lightship; thence in a generally southeasterly direction to and around Orient Point Lightbouse in Plum Gut; thence past Long Beach Lighthouse, past Greenport Breakwater, to and between a stakeboat and the end of Conklin's Point, returning to Middletown by the same route. Ranging from an 18-footer to a 43-footer, there were forty-two entries in three classes to cover this course of 48 nautical miles. The winners were as follows: Broad Bill, owned by C. D. Meloney; Brightwood, owned by A. F. Rockwell; and Halcyon, owned by T. M. Russell, in Class 1; Marie, owned by E. F. Gaffey; Lady Marjorie, owned by C. H. Norris; and Tik Tok, owned by C. B. Bryant, Class 2; Viola, Neenah, Nixie II, Ariel, and Betty, in Class 3, owned respectively by H. C. Spring, A. F. Lewis, Howard Taylor, W. H. Storms, and J. W. Connell.

Summary of Elapsed Times for Each Round in the 1914 Races for the A. P. B. A. Gold Challenge Cup—30 Nautical Miles—Lake George, N. Y.

FIRST RACE.—Start 5:15 P. M. July 30th, 1914.

Boat.	Motor.	H. P.	Owner.	1st lap	2nd lap	3d lap	4th lap	5th lap	Total	Pts.
Baby Speed Demon II	Sterling	180	Mrs. Paula H. Blackton	8:38	8:23	8:17	8:14	8:13	41:45	9
Buffalo Enquirer	Sterling	180	W. J. Conners	9:41	8:46	8:41	8:35	8:28	44:11	8
Ankle Deep	2 Sterling	350	C. S. Mankowski	9:33	8:45	8:45	8:46	8:43	44:32	6
P. D. Q. IV	Sterling	180	J. J. Harry	10:25	9:38	9:30	9:35	9:41	48:55	5
Baby Reliance V.	Sterling	180	J. S. Blackton	8:28	8:09	8:14	8:07	8:11	41:07	10
Tech Jr.	Sterling	180	C. Du Pont	10:38	9:53	9:48	9:48	10:03	50:10	4
P. D. Q. V	Van Blerck	300	A. G. Miles, Lake George Syndicate	9:15	8:31	8:40	9:01	9:00	44:27	7
Hawk Eye	Van Blerck	300		8:56	8:43	9:32	10:35	12:35	50:21	3
Peter Pan VI	Van Blerck	180	James Simpson	12:50	out	....	.....	.....	D.N.F.	0
Harpoon	Van Blerck	180	W. H. Young	Did	not	start	.....	.....	D.N.S.	0

The average speed of Baby Reliance V was 50.41 statute miles per hour.

SECOND RACE.—Start 10:30 A.M. July 31st, 1914.

Boat.	Motor.	H. P.	Owner.	1st lap	2nd lap	3d lap	4th lap	5th lap	Total	Pts.
Baby Speed Demon II	Sterling	180	Mrs. Paula H. Blackton	8:27	8:09	8:05	8:10	8:12	41:03	10
Buffalo Enquirer	Sterling	180	W. J. Conners	8:54	8:32	8:30	8:31	8:28	42:55	9
Ankle Deep	2 Sterling	350	C. S. Mankowski	8:55	8:45	8:45	8:44	8:44	43:53	8
P. D. Q. IV	Sterling	180	J. J. Harry	9:55	9:40	10:55	9:23	13:01	52:54	7
Baby Reliance V.	Sterling	180	J. S. Blackton	did	not	start	.....	.....	D.N.S.	0
Tech Jr.	Sterling	180	C. Du Pont	10:48	10:22	10:35	10:40	10:47	53:12	6
P. D. Q. V	Van Blerck	300	A. G. Miles, Lake George Syndicate	8:57	out	....	.....	.....	D.N.F.	0
Hawk Eye	Van Blerck	300		did	not	start	.....	.....	D.N.S.	0
Peter Pan VI	Van Blerck	180	James Simpson	did	not	start	.....	.....	D.N.S.	0
Harpoon	Van Blerck	180	W. H. Young	did	not	start	.....	.....	D.N.S.	0

The average speed of Baby Speed Demon II was 50.49 statute miles per hour, a world's record.

THIRD AND FINAL RACE.—Start 5:15 P. M., July 31st, 1914.

Boat.	Motor.	H. P.	Owner.	1st lap	2nd lap	3d lap	4th lap	5th lap	Total	Pts.	Tot'l Pts.
Baby Speed Demon II	Sterling	180	Mrs. Paula H. Blackton	8:25	8:21	8:53	9:06	9:02	43:47	10	30
Buffalo Enquirer	Sterling	180	W. J. Conners	9:36	9:49	9:33	9:29	9:34	47:22	9	26
Ankle Deep	2 Sterling	350	C. S. Mankowski	9:07	8:45	8:45	8:39	out	D.N.F.	0	14
P. D. Q. IV	Sterling	180	J. J. Harry	did	not	start	.....	.....	D.N.S.	0	12
Baby Reliance V.	Sterling	180	J. S. Blackton	did	not	start	.....	.....	D.N.S.	0	10
Tech Jr.	Sterling	180	C. Du Pont	did	not	start	.....	.....	D.N.S.	0	10
P. D. Q. V	Van Blerck	300	A. G. Miles, Lake George Syndicate	did	not	start	.....	.....	D.N.S.	0	7
Hawk Eye	Van Blerck	300		8:27	8:57	8:59	out	.....	D.N.F.	0	3
Peter Pan VI	Van Blerck	180	James Simpson	did	not	start	.....	.....	D.N.S.	0	0
Harpoon	Van Blerck	180	W. H. Young	did	not	start	.....	.....	D.N.S.	0	0

The average speed of Baby Speed Demon II in this race was 47.3 statute miles per hour.

New Things For MOTOR Boatmen

Bosch Products.

With the completion of the recent Bosch-Rushmore merger, the Bosch Magneto Company of New York has added to its already complete line of self-starters, a line of flywheel crankers well known to the marine trade. In the Bosch-Rushmore starters, made in 6- and 12-volt styles, the driving pinion does not engage with the flywheel except while it is being used for cranking. This is accomplished by means of a compression spring in the commutator end of the shaft which holds the armature out of line with the pole pieces, until by the closing of the switch, the armature is drawn in by magnetic attraction, bringing the pinion into mesh with the flywheel gear. When the gasoline engine takes up its cycle the motor is relieved of its load, the current dropping close to zero and allowing the compression spring to force the pinion out of mesh. One of the many ingenious features of the Bosch starting and lighting outfit is the carbon particle dynamo regulator which is shown with the cover removed in the accompanying picture. This regulator prevents the generation of higher voltages than are required by introducing resistance into the field circuit. This is accomplished by having a small cylindrical compartment filled with carbon particles against which the end plates of the compartment press at normal voltage. As the voltage is increased a small solenoid lifts a diaphragm at the top of the pack, thus removing some of the pressure from the carbon particles, and increasing the resistance in the field circuit. This automatically regulates the voltage generated by the dynamo regardless of the speed of the engine.

* * *

The Senrab Kerosene Carbureter.

The Senrab kerosene carbureter, manufactured by the Senrab Carbureter Co., Inc., Sea Cliff, L. I., is so arranged that the adjustment of a single moving part effects in proper ratio the fuel supply, the main air supply and the auxiliary supply, so that under different degrees of running, the user may depend upon the admission into the cylinders of a correctly proportioned mixture of fuel and air without separately adjusting the several supplies. Advantage has been taken of the Venturi tube as a main air supply owing to the increased velocity through a passage having a constricted throat, and because the tube lends itself to a convenient regulation of air by means of a moving central member placed in axial relation to it. A control method for this carbureter has been provided, whereby by the proper setting of a lever, the carbureter may be placed in the most convenient location on any engine. Provision has been made for starting on gasoline, and by means of the exhaust heated chamber and the special features of the instrument, it is claimed that it will operate as efficiently and economically on kerosene as any other carbureter will on gasoline.

* * *

The Kenney Silencer.

In the Kenney exhaust silencer, manufactured by M. A. Barber, of Norwich, Conn., it is claimed that the velocity shock of the exhaust gases is destroyed by a whirling collision in the patent shock head, and that the gases are then completely silenced by the undulating expansions through the vanes. As the openings through this silencer are more than ten per cent. greater than the area of the exhaust pipe, it is pointed out that there is not only no chance for back pressure, but that there is actually a slight vacuum maintained in the head when the motor is up to speed. For marine use the silencer is set in a horizontal position, and the slight amount of cooling water which is admitted to it drains through an opening in the shock head. The Kenney is built of pure copper with the heads of anti-corrosive-treated gray iron, and the single bolt used to support the vanes is of Tobin bronze. This muffler is made in sizes adapted to any motor.

* * *

A New Trouble Lamp.

Mabey's Electric & Manufacturing Co., of 940 N. Pennsylvania St., Indianapolis, Ind., are making a combination trouble lamp and spot light, a feature of which is an arrangement whereby a protecting sleeve slips over the bulb, and in addition to saving it from breakage, acts as a reflector, ensuring a brilliant spot light. It is finished in nickel with a hard wood handle and is supplied with an Ediswan receptacle and attachment plug and 10 feet of cord.

* * *

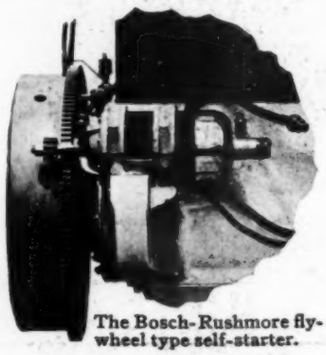
Ideal Valve Seating and Facing Tools.

The American Developing and Sales Co., of Stamford, Conn., are manufacturing two tools to be used for refacing valve seats and valves. The former is furnished with four different size pilot stems to fit the different size valve leads and make the valve seat come positively true with the valve stems. The tool is made in two sizes to accommodate valves from the smallest up to 3 inches. The cost is $8. The other tool—the valve grinder—is used to true up valves before grinding, and it is said that a much cleaner job may be made with this instrument than can be done with a lathe. The tool is adjustable to any diameter of valve. The cost is $7.

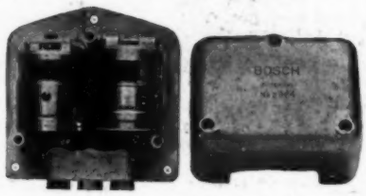
* * *

Exide X Storage Battery.

A new storage battery, known as the model X, has recently been put on the market by the Electric Storage Battery Co., of Philadelphia, Pa., whose line of Exide batteries is already well known. The chief advantage claimed for the Model X is its development of unusually great current per unit of weight and volume, making it particularly valuable for withstanding the severe drains exacted in starting and lighting. Each cell of the several which make up the complete battery is a separate sealed unit, permitting of easy removal and replacement. The gas vent and filling aperture is so arranged as to limit the amount of water to the quantity needed to replace the liquid lost by evaporation. The terminal posts are of hard bronze with lead protective coating and lead-encased nuts and washers, and the plates are of the standard Exide type.



The Bosch-Rushmore flywheel type self-starter.



Bosch carbon-particles dynamo regulator.

The Senral kerosene carbureter.

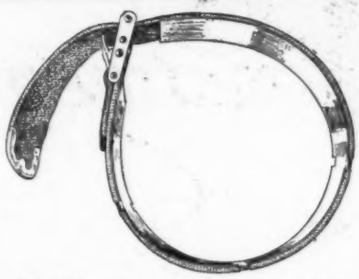
Ideal valve-seat refacing tool.

The Kenney silencer, showing path of exhaust gases.

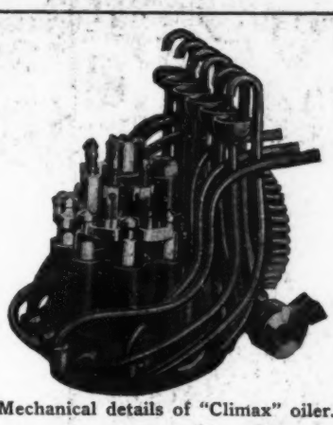
Mabey's combination trouble lamp and spot light.

The model X Exide battery for use in starting and lighting.

Ideal valve refacing tool.



The End-Oxy clamp for use in working in piston rings.



Mechanical details of "Climax" oiler.

The Peerless two-piece piston ring.

The End-Oxy Piston Ring Clamp.

The End-Oxy Appliance Co., of Trenton, N. J., are making a device designed to facilitate the accurate replacement of cylinders in regard to the correct centering of the pistons, by obviating the usual trouble found in getting the rings to slide into the cylinders. This device consists of a ring clamp which is constructed of a closely woven, flexible, webbed strap with a flat locking buckle, to which is fastened a shim brass lining securely at one end, with the other end free to slide in applying the same to the piston. The lining is sufficiently thin to enter the chamber of cylinder castings, and to enter the ring in the cylinders, yet it is too thick to enter or wedge itself between the piston and the cylinder wall. As the heaviest portion of the clamp, the buckle itself, is but ¾-inch in thickness, it is claimed that the clamp can be used on the closest type of engine construction, and yet free out perfectly for removal or reapplication. Only two clamps are required, as but two pistons travel in a plane in either the four or six type of engine construction. The clamps have a range of from 3¾ to 6 inches piston diameter, and cost $1 per pair, complete.

* * *

The Oxylene Decarbonizer.

This apparatus consists of three parts, together with the necessary valves and copper and rubber tubing. The short upper cylinder is the purifier, from which the oxygen emerges in a pure, dry state. The section beneath is the cartridge, and beneath that is the heating unit, consisting of a furnace and its protecting wall. By this system the owner need only purchase new cartridges for replacement. The purifier, heater and small appliances are kept for permanent use. The cartridges are shipped ready prepared with the chemicals from which the oxygen is produced, and this begins to form when the heater has been lighted for a moment. From the cartridge the oxygen passes to the purifier, from which it emerges ready for use. The operation of completely removing carbon from the cylinders is said to occupy a few minutes only. The cost of the outfit, with one cartridge, is $10; extra cartridges cost $1.50 each. The manufacturers are The Oxygen Decarbonizer Company, 658 Fort Street, West, Detroit, Mich.

* * *

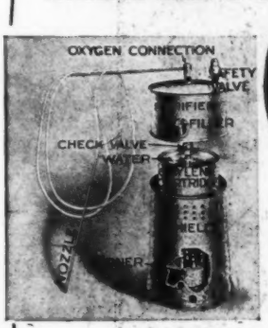
"Yankee Jaws."

The "Bon" Manufacturing Co., of Elgin, Ill., are marketing a device which they call "Yankee Jaws," which may be readily attached to any monkey wrench for the purpose of converting it into a pipe wrench. The company points out that by the use of this little device, which costs only 25 cents, the user may have a combined monkey wrench and pipe wrench in one tool at a slight cost.

* * *

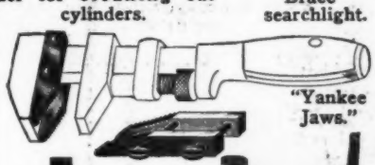
Breeze Flexible Shafting.

The Breeze Carbureter Co., 250 South St., Newark, N. J., manufacture flexible shafts for all purposes of steel music wire, and made either monocoil with one wire, or multi-coil, with several, as illustrated. It is claimed that they have the utmost flexibility and that they are cheaper than gears and joints for light power transmissions. The list of uses to which they may be put seems endless, but a few which may be mentioned here are die sinking, drilling, grinding and polishing in machine shops; sandpapering and polishing brightwork about a boat; cleaning and polishing brass work, driving circulation pumps, tachometers, etc. The shafts are made in over a dozen sizes for transmitting from 1-20 to 1 h. p., and they measure from ⅛ up to ¾-inch in thickness. In installing this shafting the company points out that there should be no sharp angles, and that the monocoil type being cheaper is not as lasting as the multi-coil type, but that it will be found eminently suited to simple push and pull work.



The Oxylene decarbonizer for cleaning out cylinders.

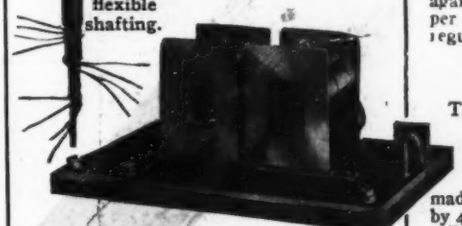
The Sprague-Brace searchlight.



"Yankee Jaws."

Meter valve carbureter.

Breeze flexible shafting.



The Metzger-Daniels magnet charger.

* * *

The Metzger-Daniels Magnet Charger.

This new system utilizes the primary magnetic charging effect of the coils direct, as the magnet to be charged is placed directly in the fields. The current required is supplied from any type 6-volt storage battery, and in an emergency 6 or 8 dry cells may be used with good results. There are over 8,500 ampere turns of wire used, which makes his instrument practically instantaneous in its action. A strong knife switch is provided for making contacts. The instrument is finished in nickel and mounted on a mahogany base presenting a very pleasing appearance. The Overland Sales Co., 1140 Michigan Ave., Chicago, Ill., are general sales agents for the United States and Canada.

* * *

The Climax Oiler.

The Climax oiler, manufactured by the Climax Brass & Manufacturing Co., 1250 W. 15th St., Chicago, Ill., is described as being simple in construction and having consequently great strength. The object of the company has been to produce an oiler which combines simplicity with efficiency, and to do this they have as one of the features a single eccentric which admits the oil to all the various ducts. The entire mechanism (shown in the accompanying cut) is immersed in a bath of oil, and as the movement of the working parts is slow, there is very little wear in the oiler. The lift of the measuring plunger is merely a fraction of an inch, so that any sediment that might settle from the oil is left undisturbed in the bottom of the tank. Absolute accuracy in measuring the supply of oil to be let into the various pipes is a feature claimed for this oiler which is made in several sizes.

* *

Peerless Piston Ring.

The Peerless Piston Ring Company, of 99 Lafayette Street, Newark, N. J., are marketing a piston ring which is designed to prevent leakage of compression and lubricating oil past the slots. It consists of a regular outer eccentric ring with which is combined an inner eccentric ring which has a flange fitting the cylinder bore. It is claimed that the pressure of the outer ring serves to equalize the pressure against the cylinder walls. If desired, one ring per piston may be used in combination with regular rings.

* * *

A New Searchlight.

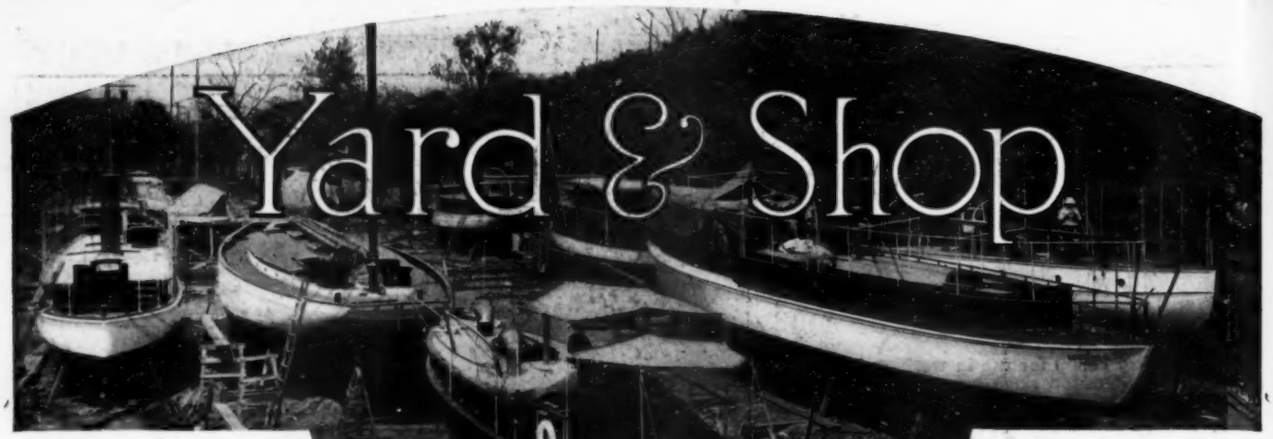
The Sprague-Brace Manufacturing Company, of 60 Jefferson Avenue, East Detroit, Mich., are putting on the market a new motor boat searchlight which sells at a reasonable figure. The light is strongly made of polished brass and measures 12 inches by 4¼ inches. It is designed to operate on dry cells or storage battery, and while economical in current consumption, it is claimed that it will throw a powerful light a distance of 200 feet. It is arranged so that it may be quickly turned in any direction, sideways or up and down. The heavy block type, as shown in the accompanying illustration, sells for $5.

* * *

Meter Valve Carbureter.

Among the claims made for their new product by the Meter Valve Carbureter Company, of Beckel Building, Dayton, Ohio, are the positive method of metering or measuring the air and fuel to suit the load or speed of the motor by means of an auxiliary air valve which surrounds the Venturi tube. In order to eliminate the possibility of cross currents of varying temperature and consequent condensation, all the air taken in passes through one intake. All springs have been done away with, a flange on the bottom of the valve, which forms a pocket or air cushion, taking their place.

Yard & Shop

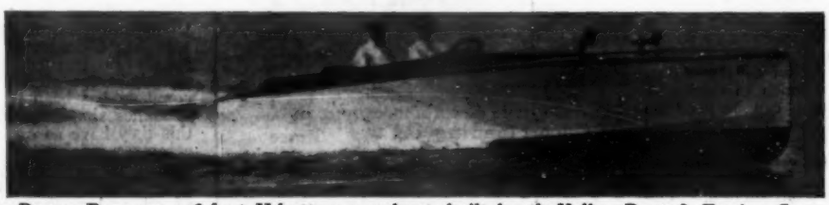


The Lundin Lifeboat.

What promised to be one of the most interesting trips ever undertaken has recently been cut short, due to the unsafe conditions of the Atlantic arising from the general European conflict. On July 30th the Lundin motor lifeboat, commanded by Mr. Signe Sivard, superintendent of the Welin Marine Equipment Co., and Mrs. Sivard, and accompanied by a crew of four men, set sail from the Battery for England. A steamer convoyed her to Sea Gate, and every passing vessel saluted the brave little craft—only 30 feet in length—which was expected to demonstrate the suitability of this type of craft for lifeboat service on the ocean liners. The boat which is the conception of Capt. A. P. Lundin, president of the Welin Marine Equipment Co., of Long Island City, the builders, is constructed of galvanized sheet steel, and in the course of the trip down the bay, Captain Sivard purposely collided with his convoy in order to test the strength of his craft. Although the lifeboat is protected with balsa wood fenders to take the edge off any knock which she might receive in lowering from the deck of a steamer, in this particular test the rub strake of the steamer struck above the fenders against the side of the steel house. In spite of this severe punishment the husky little craft came through with scarcely a dent in her superstructure.

The Lundin lifeboat with a length of 30 feet has a beam of 12 feet and a draft 27 inches. She is absolutely flat bottomed, and her 27" x 20" propeller turns in a tunnel aft, the effect of this tunnel being to give the boat the steerage way which is usually obtained from a keel. As prepared for this trip she also was fitted with a centerboard. Thirty-four inches above the bottom is a steel deck, the space between being partitioned off into airtight compartments.

A 4-cylinder 6" x 8" 32-37 h.p. Standard motor provides the motive power and also turns a Dayton dynamo for lighting the boat, cooking purposes, and operating the wireless equipment. Two 250-gallon fuel tanks are strapped fast to the bilge compartments on either side of the engine box, and extra cans were also stowed in the air-tight compartments in the boat's double bottom. The interior arrangements allow for a stateroom for Mrs. Sivard, and a soundproof room for the wireless equipment. Three bunks are slung in the engine-room for the men, who stand watch and watch on deck. Capt. R. A. Rigoulot shipped for the cruise as navigator. He has had considerable experience in United States Army transports in the Pacific. Charles Klintberg went along as assistant navigator, and Walter Patterson took charge of the motor. H. J. Heldrum, who has been in charge of the high power wireless station at Cape Cod, was wireless operator. The Welin Company now announces that two courses are open for the intrepid commander of the lifeboat—either he will take her to San Francisco via the Canal, or he will wait until conditions return to normal and again attempt the trans-Atlantic trip.



Bunny B., a new 26-foot V-bottom runabout, built by theValley Boat & Engine Co., and powered with a 55 h.p. Sterling high-speed engine.

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New Loew-Victor Distributor for Maryland.

Mr. R. W. Thompson, of 214 Light Street, Baltimore, Md., after a trip to Chicago, and an inspection of the factory of the Loew-Victor Engine Co., decided that this company's marine motors would make a valuable addition to his present lines of engines. He has,therefore, been appointed Loew-Victor distributor for Maryland.

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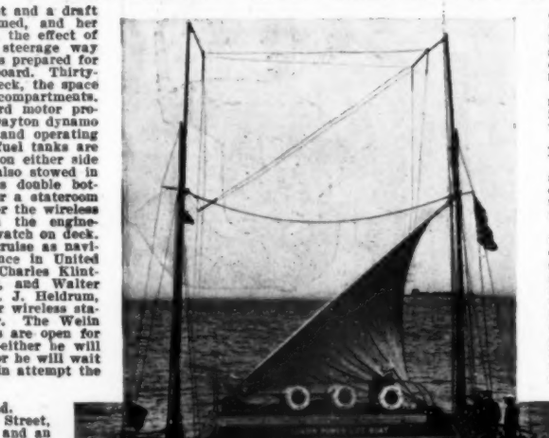
Durkee's Campaign of Protection.

Chas. D. Durkee & Co., of 2 South Street, New York, are now sending to their customers cards and circulars pointing out the unnecessary expense to which they and all big houses are put by the practice of customers returning goods without notification, where no fault exists on the part of the manufacturer. As a matter of self-protection they will, in the future, refuse to accept material of any description, unless permission for its return is given in advance. When they do accept a return of goods a charge of 10 per cent. will be made to cover the cost of handling, and, of course, such other expenses as freight or expressage. When, however, the fault is theirs they will expect to stand these expenses. The proposition seems a fair one as a manufacturer is often obliged to bear a 50 per cent. loss on articles returned, and his prices must, therefore, be higher to make up for this deficiency. If, however, by some such scheme as the Durkee Co. is now putting forward, the "guilty" person is asked to pay for a portion of this loss, the prices may be kept down for other customers.

• • •

Large Addition to Sterling Factory.

Contracts have recently been let by the Sterling Engine Co., of Buffalo, N. Y., to build a 35 x 80-foot addition to their factory, and work has already been started, as the building is needed right now. The entire space will be utilized as an additional test room and every modern equipment possible is to be installed in order to make the testing of Sterling engines as efficient as possible. The floor will contain stands for thirty engines, so that this number can be tested at one time. A traveling crane operates from end to end of the building and picks up an engine as it comes in the door and drops it on whichever stand it is fitted for. Engines will be tested in connection with hydraulic water brakes to determine their power and with aerial propellers in order to test the thrust, which is a very important item to take into consideration with marine engines. The water pump of each engine will have to lift its water from a depth of three feet as a test of its efficiency to operate in a boat. Every engine will be subjected to a test that will extend over at least three complete days and, in many cases, more than a week. A cordial invitation is extended to all readers of this magazine to visit the Sterling plant the next time they are in Buffalo.



Capt. and Mrs. Sivard and their Lundin lifeboat.

See item on this page concerning their recent trip.

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Scripps New England Agent.

The marine motor agency field has won a new and exceptionally well prepared recruit in W. Burton Piersol, who now represents the Scripps Motor Company, of Detroit, in the territory east of the Connecticut River in Connecticut, and the states of Massachusetts, Rhode Island, New Hampshire and Maine.

With the accumulated experience of yachting, service in the Navy, and wide travel, which has given him a chance to study motor boats from every angle, together with an intimate acquaintance with every point of the New England coast, and the boating circles there, Mr. Piersol should find a ready welcome in the New England field.

The preliminary work of organizing his territory is now occupying Mr. Piersol. He expects to open an office in Boston early in September when his sales campaign will begin in earnest.

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Regal Sales and Records.

The Regal Gasoline Engine Co., of Coldwater, Mich., announce the sale of four of their 32 h.p. four-cylinder engines to the Government of Argentine. The order for these engines was given by Inspection General de Rentas to this company's agent at Buenos Aires.

In a 100-mile race at a recent regatta in Buenos Aires, the yacht Mon Reve, owned by Sr. Juan Ortholan, succeeded in winning the first prize consisting of a handsome cup. This yacht is powered with two 32 h.p. high speed Regals and, it is said, has already succeeded in making a good record around Buenos Aires. Last fall the owner took an extended trip up the Paraguay River in this yacht, and the motors ran exceedingly well all through the voyage, sometimes being run for forty hours without stopping. In the same regatta a smaller boat, Oso III, having one 32 h.p. Regal engine installed ran over the Buenos Aires course at an average speed of 31 m.p.h.

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U-S-L Management and Staff Retained.

In the United States District Court in Buffalo on July 21st, Judge Hazel appointed James O. Moore and James A. Roberts, receivers for The United States Light and Heating Company following a case in equity. That it was a case in equity and not in bankruptcy was made evident in the hearing.

It was clearly outlined by the Court that there should be no interruption in the fulfilment of existing contracts, in the prosecution of pending business or in the company's operations in any department.

Mr. A. H. Ackermann, vice-president and general manager prior to the receivership, was immediately appointed general manager to operate the business because of his familiarity with it, and the entire staff of salesmen, engineers, etc., were retained in their former capacities.

Mr. Ackermann has issued the following statement to the trade and to the public:

"The action recently sustained in the appointment of the receivers for the property of the company was a necessary step to conserve the assets for the benefit of all. With assets of three dollars for every dollar of debt, the company is amply stable, and the Court's direction to continue the business is the last proof necessary to reassure the buying public. There are already under way plans for broad financing, and with the return of general prosperity in the country, the U-S-L, more aggressive than ever before, intends to secure its own full share of the business and to continue the manufacture and sale of its special electrical products."

• • •

Infringement Suit.

Suit has been brought in the District Court for the Eastern District in Brooklyn, by Gottfried Piel against the Automobile Supply Manufacturing Co., Inc., under the Long patent No. 1,080,090, for alleged infringement by

W. Burton Piersol, who now represents the Scripps Motor Co., in the New England territory.

reason of the manufacture, use and sale of "Handphone" horn.

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Sterling Appoints Pacific Coast Agent.

The Sterling Engine Company, of Buffalo, N. Y., announce that they have appointed Messrs. C. H. Evans & Co. their dealers for San Francisco and district. C. H. Evans & Co. have a large show room at 183-187 Fremont Street, San Francisco, and as they are very well known in the marine engine industry on the Pacific Coast they are well able to handle the Sterling engine to advantage in the territory assigned to them. Mr. C. Willard Evans, the secretary of the company, is the man who devotes the greater part of his time to their marine engine interests and his knowledge of the industry is very broad. The other officers of this organization are Mr. C. H. Evans, president, and Mr. W. W. Fairchild, vice-president. The firm has been prominent in marine circles for a great many years, devoting most of its time to steam engines, steering gears and other parts of a ship's machinery, but since the gasoline engine has made such strides as a power plant for all types of boats, they naturally have followed the trend and are catering to the new requirements.

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Loew-Victor Factory Representative for Pacific Coast.

Mr. W. J. Condlon, of the Loew-Victor Engine Co., Chicago, Ill., has recently left for the Pacific Coast, where he will spend all his time working with the Loew-Victor dealers up and down the coast. This concern has now three representatives on the road at all times and is now getting ready to open a factory branch in New York City, where it will carry a complete stock of engines and parts, and maintain a service department for the benefit of Loew-Victor owners along the Atlantic Coast.

• • •

New 26-foot X-Celo runabout, built by the Milwaukee Yacht & Boat Co. She is powered with a 25-30 h.p. Buffalo engine.

Creeping Bear.

Although the Red Wing Thorobred has achieved some notable victories in the high speed racing field, the manufacturers, the Red Wing Motor Co., of Red Wing, Minn., announce that this does not mean that she gets off the job when it comes to doing heavy service. One of these engines is installed in Creeping Bear, an interesting craft owned by Roxie Nelson, of Red Wing. Creeping Bear is a shallow draft passenger boat with a tunnel stern, and she makes between 11 and 12 miles an hour powered with a Model C Thorobred. The motor is installed under cover in the center of the boat, and the big craft which measures 35 x 7 feet, is provided with chairs for the passengers, whom Nelson takes out on picnic parties and the like. This boat has been in operation since the opening of this year's season, making daily long trips in the passenger service.

• • •

Ferro Literature.

The Ferro Machine and Foundry Co., of Cleveland, O., announcement of the reorganization of which company was made in this department in the last issue, has gotten out a booklet giving a short biography of the various officers of the company. The booklet also contains illuminative views of some of the processes gone through in turning out the Ferro marine engine and outboard motor.

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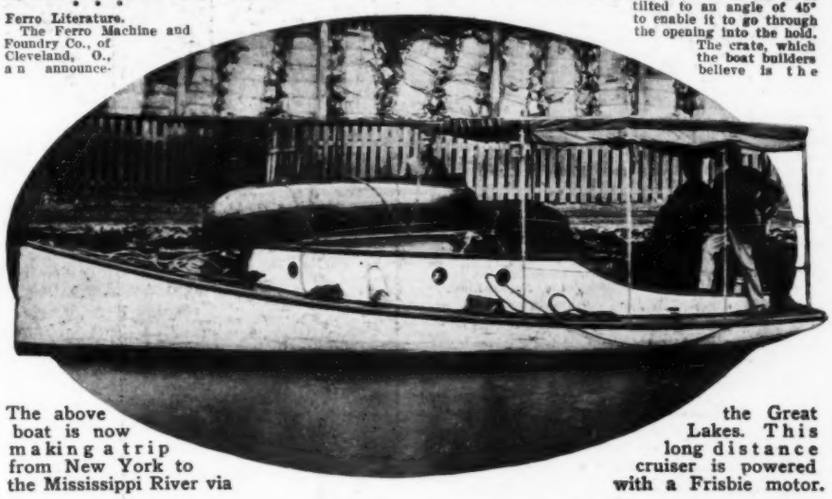
Shipping a 42-Footer to Peru.

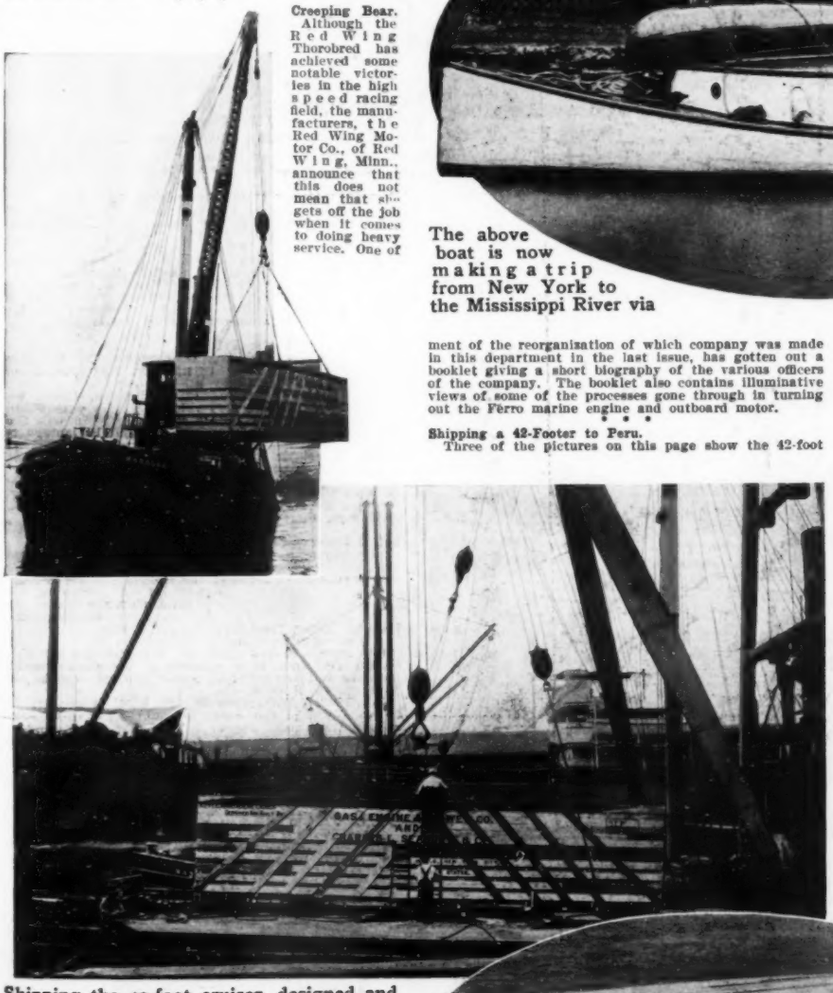
Three of the pictures on this page show the 42-foot cruiser General Castilla, built by the Gas Engine & Power Co., and Charles L. Seabury Co., Cons., Morris Heights, N. Y., for the President of the Republic of Peru, as she looked crated and ready for shipment on the steamer Crofton Hall last month. General Castilla weighs in the neighborhood of 10 tons, and in order to protect the boat for the long trip around the Horn, it was necessary to put her in a substantial crate so that she could be loaded through the hatch of the steamer. The hatch was 35' 6" long and 14' wide and as the crate measures 43' x 10' 6" x 10' 4" it had to be tilted to an angle of 45° to enable it to go through the opening into the hold. The crate, which the boat builders believe is the largest of its kind ever built around a boat, withstood the strains attendant on lifting it at this precarious angle, although as stated above, the cruiser is a pretty hefty proposition.



The above boat is now making a trip from New York to the Mississippi River via the Great Lakes. This long distance cruiser is powered with a Frisbie motor.

General Castilla is a raised-deck cruiser with a beam of 9' 0" and a draft of 3'. She is built of cedar and oak, with joiner work of mahogany. Her engine is a 34-48 h.p. Speedway, and she is fitted with an alcohol stove also bearing the Speedway name. Forward of a roomy cockpit having a raised helmsman's platform is the engine-room with accommodations for crew of two. The galley is in this compartment on the port side, and forward is the main cabin, 14 feet long, having Pullman accommodations for four people.

Castilla was crated at the builders' yards at Morris Heights, lifted aboard the steam lighter Manager, and carried down to the pier at Brooklyn, where she was transferred to a barge and thence lifted into the hold of the New York and South American Line steamer. Everything went off without a hitch and she is by now probably journeying up the west coast of South America on the last leg of her long journey.



Shipping the 42-foot cruiser, designed and built for the President of Peru by the Gas Engine & Power Co. and Chas. L. Seabury & Co.

Manufacturers and What They Make.

Uses "Lubroleine" in Racing Boats.

The following letter from Adolph E. Apel, of the Ventnor Boat Works, of Atlantic City, N. J. has been received by the Fiske Brothers Refining Co., of New York City: "I feel inclined to inform you that I have used your 'Lubroleine' lubricating oil in various high speed motors with exceptionally good results. The new cruiser Peggy, designed and built by me, captured five first prizes in the following races in which she was entered: May 29th, Atlantic City Carnival; June 27th, Chelsea Yacht Club; July 4th, Corinthian Yacht Club, of Cape May; July 11th, Holley Beach Yacht Club, and July 18th, Stone Harbor Yacht Club. It gives me great pleasure to recommend your 'Lubroleine' oil for use in marine motors."

• • •

Hyde Propellers Make Good.

Baby Speed Demon II, the winner of the Gold Challenge Cup at Lake George, July 31st, was equipped with a Hyde Turbine Type propeller, it being a regular stock wheel shipped the day after the order was received by the Hyde Windlass Co., of Bath, Me.

• • •

Searchlights Make Good Showing.

The Carlyle & Finch Co., of Cincinnati, O., announce the sale of the following searchlights within the space of four or five weeks: One 14" to party in Portland, Ore.; two 9" to parties in Seattle, Wash.; three 19" to Philadelphia, Pa.; one

The Motor Boat & Supply Company's service station No. 1 at Cleveland, Ohio, mentioned last month in this department.

14" to Chicago, Ill.; one 19" to St. Louis, Mo.; one 9" to St. Paul, Minn.; one 7" to Dayton, O.; one 14" to Los Angeles, Cal.; two 14" to London, Eng.; one 9" to Geneva, N. Y.; one 14" to Boston, Mass.; one 14" to Neponset, Mass.; one 19" to Avalon, Cal.; two 7" to New York; one 19" to Toledo, O.; one 14" to Montreal, P. Q., Canada; one 14" and one 7" to Philadelphia, Pa.; three 19" and one 14" to Cincinnati, O., and one 14" to Louisville, Ky.

• • •

Bosch at Lake George.

The Gold Cup Races at Lake George, according to the Bosch Magneto Co., of New York, made another clean sweep for Bosch ignition. Every boat that finished on the first, second and third days used Bosch magnetos, plugs, switches and cable. Baby Speed Demon II, who set up a new record for the fastest time made in competition in America, was Bosch-equipped throughout.

• • •

Apple Electric Company to Move East.

With the purchase of five acres of land, buildings giving 70,000 square feet of floor space and an office building all ready for occupancy, the Apple Electric Company is preparing to move its headquarters for the manufacture of automobile and motor boat starting and lighting outfits and batteries from Dayton, Ohio, to Newark, N. J.

The move will not be immediate, however. The Apple Company products will continue to be manufactured at Dayton until the new plant has demonstrated its efficiency to turn out the work in volume and up to the Apple standard of quality in every respect. This plan was decided upon to eliminate all chance of the slightest hitch in making deliveries, and was made possible by the elaborate preparations on hand for an increased product.

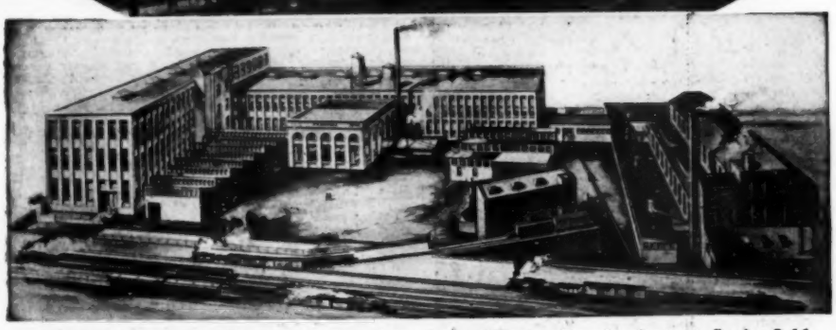
The important move follows the drawing together of the manufacturing and selling policies of the Splitdorf Electrical Company with those of the Apple interests, and the controlling of the Apple output by the dominant Splitdorf sales organization. The Splitdorf executive offices and manufacturing plant have been located in Newark for two years, and, with mutual interests at stake, a greater degree of co-operation from closer association is anticipated.

The new Apple factory will be the buildings formerly occupied by the Lansden Electric Company and the surrounding ground purchased by the Apple Company gives ample room for almost unlimited extension should occasion arise. Located on Frelinghuysen Avenue, a broad thoroughfare outside of the congested territory, the property backs to the main line of the Pennsylvania R. R., and a railroad spur with sidings to the several factory doors insures the prompt handling of incoming raw material and the outgoing finished product.

Work is now being rushed with the installation of banks of new, up-to-the-minute machinery. Special boring mills, turret machinery, multiple spindle drills, high speed surface milling machines—in fact every device of the most up-to-date and approved patterns to guarantee the highest class product, are being installed.

It is expected that the Apple Electric Company's line including their famed automobile and marine storage batteries, will be produced in quantity from the new plant in October, the minimum daily output being figured on 200 starting and lighting outfits by that time.

Creeping Bear, a shallow-draft 35-footer, powered with a Model C Red Wing Thorobred motor, which drives her between 11 and 12 m. p. h.



The Bosch Magneto Company's two factories. Above: Bosch plant at Springfield, Mass. Below: The Bosch Company's Rushmore Works at Plainfield, N. J.

Row Boat Motors in the Government Service.

A 4 horsepower detachable rowboat motor has recently been shipped by the Sweet Manufacturing Co., of Detroit, Mich., to Cle Elum, Washington, for use by the Government Forest Reserve in patrolling the Kittitas and Yakima Rivers. This is the section just at the foothills of the Cascade Mountains.

Such recognition by the Government demonstrates the certain usefulness of the rowboat motor, and in this particular instance it will undoubtedly be the means of saving immense loss by forest fires.

• • •

Syracuse Agents for Frisbie.

W. D. Andrews & Co., of Syracuse, N. Y., have been appointed Frisbie agents for that portion of New York in which they are located.

The Frisbie Motor Co., of Middletown, Conn., believe they will have a very valuable agency with W. D. Andrews & Co., and that the latter concern will find the Frisbie four-cycle line will prove of advantage to them.

Among Frisbie motors which have been sold in Syracuse and vicinity recently are the following: Floyd C. Hines, of Syracuse, N. Y., double-cylinder 10 h.p.; Mr. W. G. Lanning, Syracuse, double-cylinder, 14 h.p.; T. M. Milton & Son, of Brewerton, N. Y., 18-18 h.p., three-cylinder motor.

• • •

S O S Becomes Safety First.

The following exchange of letters which is printed verbatim is self-explanatory and will interest all those who have seen or heard of the Holmes lifeboat cruiser:

Department of Commerce,
Bureau of Navigation,
Washington.

Holmes Motor Company, Inc.,
West Mystic, Conn.

Gentlemen—It has come to the attention of this bureau that you have constructed for demonstration purposes a thirty-six foot motor lifeboat, which you have named S O S.

In view of the nature of this boat, it appears to be well within the limits of probability that such a designation may appear in the text of a wireless message, which suggests the not unlikely possibility of confusion with the international wireless distress signal "S O S" and for this reason, I respectfully request that you change the name of this boat.

Respectfully,
(Signed) E. T. Chamberlain, Commissioner.

Mr. E. T. Chamberlain, Commissioner,
Washington, D. C.

Dear Sir—In accordance with the request of your department, we will change the name of S O S to Safety First. Very truly yours,
The Holmes Motor Co., Inc.

SEPTEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	18
20	21	22	23	24	25	26
27	28	29	30			

CALENDAR

OCTOBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	18	20	21	22	23	24
25	26	27	28	29	30	31

September 2-3-4—Buffalo Regatta.
September 5—South Jersey Finals.
September 6—Regatta and Carnival at Baltimore.
Yacht Racing Association Regatta at Croton Point on Hudson.
September 19—Open Races at Shattemuc Yacht Club, Ossining, N. Y.
September 19-26—Annual Race Meet at Chicago, Ill.
September 27—Rockland Light and return, N. Y. Motor Boat Club.
October 10—Delaware River Speed Championship.

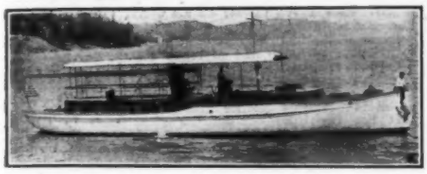
MOTOR BOATING ADVERTISING INDEX

THE MOTOR BOATING MARKET PLACE

The rate for "For Sale" and "Want" advertisements is 3 cents per word. If an illustration is used the charge is as follows, which includes the making of the cut:
Cut one inch deep, one column wide..... $2
Cut 1¼ inches deep, 1¼ columns wide..... $5
Cut three inches deep, three columns wide..... $15

Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.



FOR SALE—An exceptional opportunity to purchase this 65 x 13 x 4 ft. cruising yacht. Sustained speed 12 miles; 50 h.p. Heavy Duty motor, weighing 5000 pounds; boat is fully equipped and furnished. Electric lights, hot water heat, finished inside and out in mahogany, main saloon 12 x 15½ ft., two double staterooms and bath; launched last summer; built for member of this company now not in a position to use it. Sold at a big sacrifice if taken at once. Defoe Boat & Motor Works, Bay City, Mich.

SPECIAL PRICES.

Famous "Kitty Hawk, Jr.," 20-foot Hacker hydroplane; 6-cylinder Van Blerck racing engine, complete. Guaranteed speed of 40 miles, or no sale. Write for specifications and net price.

26-foot hydroplane hull without engine; suitable for 4 or 6-cylinder Van Blerck motor. Estimated speed, 36 to 40 miles, according to size of engine. Write for complete specifications and net price.

Three exceptional bargains in factory-rebuilt Van Blerck motors:

Model C-6, 75 H.P. at 900 R.P.M., suitable for day cruiser, $750.00.

Model C-8, full 1913 model, 135 H.P.; full guarantee, same as new motor, $1250.00.

Model C-6, 75 H.P. at 900 R.P.M., suitable for fast runabouts, $700.00.

VAN BLERCK MOTOR CO., Monroe, Mich.

BEST MOTOR BOAT BARGAINS NOW AVAILABLE

30-ft. Elco Mahogany Runabout, Standard Motor,	$1000
35-ft. Raised Deck Cruiser, Standard Motor	1500
42-ft. Cruiser, Long Cockpit, Speedway	2500
54-ft. Elco Day Cruiser, High Grade	6200
55-ft. Modern High Grade Cruiser, Lamb Motor	6000
60-ft. Midship Bridge Cruiser, Standard Motor...	3500
50-ft. Midship Bridge Cruiser, Murray & Tregurtha	6000
68-ft. Large Accommodations, Two Standards	5500
75-ft. High Grade Modern, Two Craigs	15000
90-ft. Twin Screw, Modern High Grade	17000

McINTOSH YACHT AGENCY,
32 Broadway, New York

USE "SNAPPER" ENGINES for your small boat They are a big little engine built by The Automatic Machine Co., Bridgeport, Conn.

CANADIANS, Second-hand engine bargains. Send for list. Guarantee Motor Company,
73 Bay Street, North. Hamilton, Ont., Canada.

FOR SALE—27 ft. cruiser, brand new, latest style. Price $600 for quick sale. James Wilde, Pearl River, N. Y.

CYLINDERS REBORED—Pistons and rings fitted, new cranks, connecting rods, cases, transmissions, any part for automobile or motor boat motor reproduced like original. The shop of quality. McCadden Machine Works, Minneapolis, Minn.

ATTENTION! MUST SELL AT SACRIFICE

elegant, practically new, trunk cabin cruising power yacht, 60 ft. x 16 ft. x 3 ft. 6 in.; cost $15,000; unusual and extensive cruising accommodations; full headroom; complete modern equipment. High-grade, heavy-duty 60 h.p. 4-cyl., 4-cyc. engine. Price $3500 in commission. Address owner, P. O. Box 96, New Rochelle, N. Y.

BUY SELL EXCHANGE

Marine Glasses—Binoculars—Telescopes—Compasses—Barometers—Kodaks—Colored Eye Glasses—etc. E. B. Esaac, 26 John St., near Broadway, New York.

WANTED—A neat, intelligent young colored man, 21 years, desires a position working on house boat, private yacht, launch or regular steamship. Willing to begin at anything. Willing to go abroad or remain in America. Will remain permanent if necessary. Can furnish best of references. Address, J. A. Brooks, 324 West Liberty St., Savannah, Ga.

BIDS RECEIVED

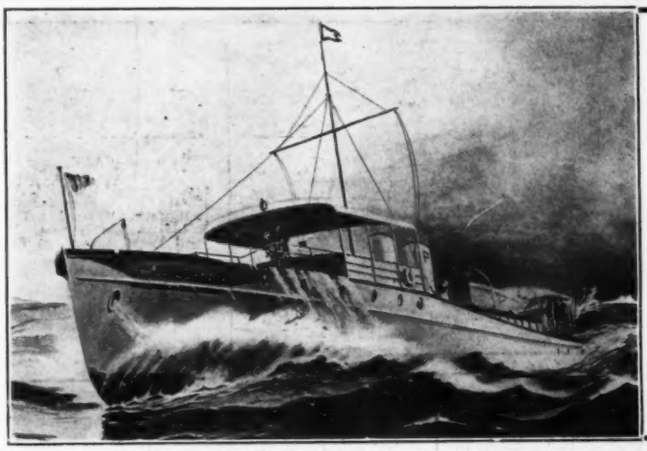
25 FT. X 6 FT. 9 IN.

SPEED 10 M. P. H.

ELECTRIC LIGHTED.

Highest Offer Takes Boat.

12 H. P. 20TH CENTURY ENGINE
TENDER EQUIPMENT.
Write for Particulars.
COST $1250.
L. H. HARRIS,
618 W. 113th Street,
NEW YORK CITY.



FOR SALE—96 ft. Cruiser. Up-to-date, fast, comfortable, complete. Light draft, 150 H.P. $9500 *for quick sale.* Walter A. Stock, 83 W. Fort St., Detroit, Mich.

Promoter wanted for Combined Motor Boat and Truck. Perfectly safe in surf. Cheap to make. A money-maker at seaside. Address care of Motor Boating, 119 W. 40th St., New York City.

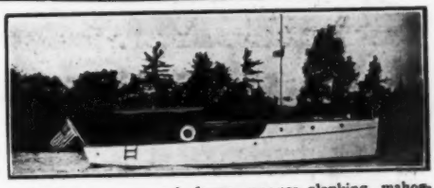
Two KERMATH 1913 engines outfit B complete with dual Kingston magneto and coil, overhauled and in absolutely perfect condition at $125.00 each. Just two of them and elegant bargains. KERMATH MANUFACTURING CO., 45 E. Fort St., Detroit, Mich.

Big Sacrifice, Herreshoff Steam Yacht—117 ft. Triple expansion engine—in perfect condition—will accept smaller boat or automobile in part payment. M. D. 390 Belleville Ave., Newark, N. J.

46-FT. CRUISING LAUNCH

LAWLEY BUILT, 1913. Sterling motor, 40 h.p.; speed 10 miles, complete cruising equipment; immediate delivery. V. D. BACON, Barnstable, Mass.

RARE BARGAINS: 16 and 20-ft. hydroplane hulls, latest style, up-to-the-minute cedar and mahogany craft. Prices very low for quick sales. Bronx Boat Works, foot of Cypress Avenue, New York City.



Cruiser 40 x 10, oak frame, cypress planking, mahogany finish, Sterling Engine. Sleeps eight. Fully equipped. Dinghy. In commission. Dr. Plumley, 53 S. Fitzhugh St., Rochester, N. Y.

Length 33 ft., Beam 7 ft. 3 in., Draught 26 in., fully equipped. 4 cylinder, 4 cycle 35 H.P. Jager Engine. Cheap if sold by the 10th of October. The Boat is at the McDonald Boat Yard, Daytona, Fla. For Particulars and price address J. B. NOKES, Daytona, Fla.

$2,000 CRUISER,
$1,200 CASH.

Seagoing V-bottom type, 30 x 8.6 x 2.8, fully equipped. Engine 28 h.p., 4 cylinder, 4 cycle (new 1914). All engine controls at steering wheel. Sleeps two in cabin. Exceptionally roomy cockpit. Sands toilet; galley; ice-box; fresh water tank; electric lights, etc. Change in owner's business plans reason for bargain. May be inspected by appointment at Greenport, Long Island, New York. Write Box 10, Motor Boating, 119 W. 40th St., New York City.

Two-room cottage for rent near Sea Isle City. Deep water at house. Apply 5711 N. American St., Philadelphia, Pa.

WANTED—Good sail, auxiliary or power boat, about 30 feet, under 3 feet draught. Send photograph and price. 125 Seaside Avenue, Atlantic City, N. J.

Sell Your Motor Boat or Motor in This Market Place

When a man is looking for a certain article he naturally refers to the place where he will be most likely to find what he wants. Thousands of readers know of the bargains that are always listed in the Motor Boating Market Place, so they look here first.

Successful advertisers follow the same course as those who are looking for something—they place their advertisements where they are most likely to be seen by prospective buyers.

Motor Boating has a guaranteed circulation in excess of 25,000 copies per issue, and every copy is seen by several persons. In this way practically every motor boat enthusiast in the country is reached, as well as the principal foreign markets. In this great audience there are sure to be several prospective customers for every article you want to sell.

We will write your advertisement if you will send full information and tell the amount of space you wish used. Enclose remittance to cover size of advertisement you want, figuring at the rate of 3 cents per word, each insertion.

MAIL YOUR ADVERTISEMENT TODAY

J. S. Hildreth, Adv. Mgr. — MOTOR BOATING — 119 West 40th St., New York

THE MOTOR BOATING MARKET PLACE

Opportunities for the Motor Boatman

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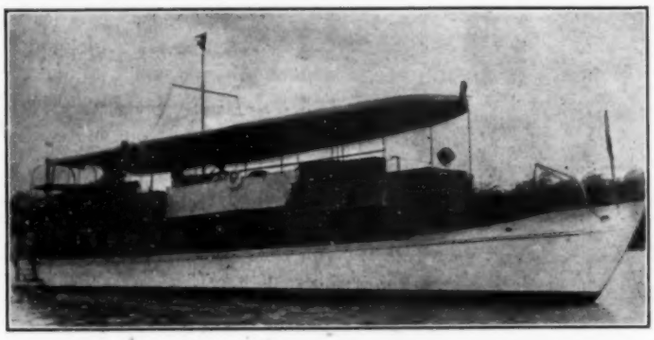
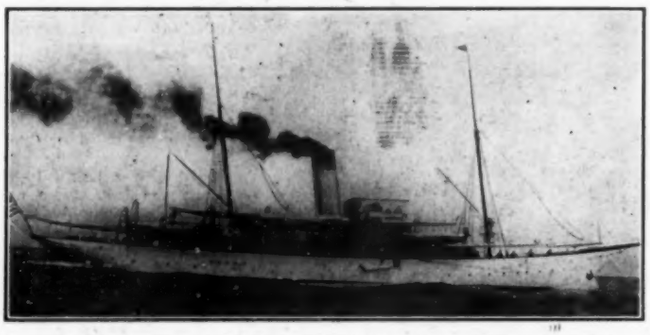


No. 6030.—70-ft. Gasoline Cruiser of best design and build; new Winton engine, 6 cylinder, 175 H.P. Speed 12 to 13 miles; splendid accommodations; clear upper deck. Especially suitable for Florida Cruising. Inspectable at New York. For further particulars address FRANK BOWNE JONES, Yacht Agent, 29 Broadway, New York. Yachts of all sizes and types for sale and charter.



No. 22.—SALE, CHARTER.—Ocean going steam yacht. AMERIRCAN REGISTRY. Fine for trip to Europe. Classed 100 A. I. Lloyds. Apply to G. W. Ford Yacht Agency, 30 East 42nd St., New York.

SEVENTH ANNUAL CLEANING OUT SALE.
For sale at less than factory cost.
One .....30-foot Mahogany Runabout.
Two .....25-foot Open Motor Boats.
Six .....23-foot Racine Special Runabouts.
Seven.....19-foot Racine Special Runabouts.
Two .....19-foot Semi-Speed Boats.
Seven.....15-foot Racine Special Runabouts.
It has been our custom the past years to CLEAN OUT our stock at the end of each season regardless of price. These boats are all new, constructed of the best material, the very best workmanship, all finished complete ready for the engine. Will sell with or without engine, with or without fittings. Write to-day which boat you are interested in and we will send full description. We are going to dispose of these boats at prices that will astonish. Racine Boat Company, 1615 Racine St., Racine, Wisconsin.

WILL sacrifice my newly built speed boat, with a new 20 H.P., 4 cycle, 4 cylinder, Elco engine, fully equipped with brass fittings, reverse clutch and magneto, one man control, 18 miles an hour. James MacPherson, 388 East 144th St., Bronx.

WANTED—Position by experienced man as captain or engineer of motor yacht or houseboat. Well acquainted with East Coast of Florida; can bring boat from New York South. Address Captain, care Motor Boating, 119 W. 4th St. N. Y.

Will exchange $1800 automobile, two years old, for twenty-four to thirty-two foot fast motor boat. Must be good. Send full description and original cost. E. T. MEREDITH, Des Moines, Ia.

I HAVE THE BOAT YOU WANT
listed in my office—will find it for you—or it hasn't been built. Let me know your wants. Small boat owners, send in your particulars. I specialize in boats under 50-foot. Agent for MORRISTOWN motors. KIRCHHOF, 136 Liberty St., New York City.

FOR SALE: A 40 H. P. Otto stationary engine, about five years old but used very little, serial number 8962. This engine is in perfect condition, thoroughly guaranteed and to a quick buyer we will make an exceptionally low price. Address Bruns, Kimball Company, 115 Liberty St., New York City.

80 H.P. Jager 4 cyl. 4-cycle, heavy-duty: One pair at $825.00 each.
50 H.P. Ralaco 4-cyl., 4-cycle, heavy-duty: One pair at $750.00 each.
A bargain in a 31' x 6' 9" Runabout at $600.00.
A 28' Runabout hull for $500.00.
40 H.P. Holmes 4-cyl., 4-cycle, medium duty at $750.00.
THE HOLMES MOTOR COMPANY, Inc., West Mystic, Conn.

TAKEN FOR DEBT:—Lot small generators suitable for motor boats; 6-8-10 lamps, $8.00-$10.00-$12.00 each; also have 15 h.p. Fairbanks Marine Engine, 2-cylinder complete, automatic oil feed, 20-inch propeller, like new, $75.00. Chas. Johnston, West End, Pittsburgh, Pa.

Restart your engine from the seat after making short stops. Save considerable cranking. Complete switch with instructions sent postpaid, 75 cents in coin for two cycle, two or more cylinders, jump spark only. Give number of cylinders. Kelley, 2440 North Sixteenth Street, Philadelphia, Pa.

Motor Boating's Big Sales Co-operation

Buy from Your Nearest Dealer

FOR the convenience of readers, Motor Boating has made arrangements with leading dealers in the largest cities to handle all articles advertised in Motor Boating. This, of course, refers to all goods that lend themselves to dealer business. If they do not carry the goods in stock they will be in a position to give you the prices and other information and then get same on order. In short, Motor Boating will be their special catalogue. These dealers have been very carefully selected and have the absolute endorsement of Motor Boating.
This plan means that you can buy all these nationally advertised accessories from your own dealer. You can see, or know all about the goods before you pay your money.
The fact that an article is advertised in Motor Boating is a stamp of quality. The management of Motor Boating makes it a point to eliminate all inferior goods. This, of course, does not mean that all products not advertised in Motor Boating are unworthy of your attention. Call on, or write, the dealer nearest your home.
The following list of responsible dealers has been entered by Motor Boating. New Names will be added as soon as our representatives get in touch with other desirable dealers.

Atlanta, Ga.
Chas. E. Miller
Atlantic City, N. J.
Auto Marine Supply Co.
Baltimore, Md.
The James Walker Co.
Brooklyn, N. Y.
Chas. E. Miller
Boston, Mass.
Chas. E. Miller
A. S. Morss Co.
Buffalo, N. Y.
Chas. E. Miller
Chicago, Ill.
Geo. B. Carpenter & Co.
Christchurch, N. Z.
Leader Launch & Equipment Co.
Cincinnati, Ohio
The Herman Burmiller Co.
Cleveland, Ohio
Chas. E. Miller
The Motor Boat & Supply Co.
Detroit, Mich.
Chas. E. Miller
Nichoalds Co.
Hartford, Conn.
Chas. E. Miller
Minneapolis, Minn.
J. C. Shadegg Engine Co.
Newark, N. J.
Chas. E. Miller
New Orleans, La.
Chas. E. Miller
New York, N. Y.
Auto Supply Co.
C. D. Durkee & Co.
Chas. E. Miller
W. & J. Tiebout
Topping Bros.
Philadelphia, Pa.
Chas. E. Miller
F.Vanderherchen's Sons
Richmond, Va.
A. S. Kellam, Inc.
Rochester, N. Y.
The Hall Tuckitt Co.
Springfield, Mass.
Chas. E. Miller

119 West 40th Street — **MOTOR BOATING** — **New York City**

Our Greatest Motor Boat Races.

(Continued from page 5)

the thirty miles than on the preceding day. Hardly necessary to have timers when Ankle Deep is racing. This time of 42-43 for thirty nautical miles is equivalent to a speed of 47.4 miles per hour, just about the average speed which this boat made in the American races last year when she was running at her best.

In England last September, Ankle Deep's best time for the so-called 32.4 nautical miles was 42-41, which is equivalent to 52.4 miles per hour or just 5 miles an hour faster than she has ever done on this side of the Atlantic. This would indicate that the supposed length of 32.4 miles was 9½ per cent. too short and that the boats, instead of going 32.4 miles really went only 29.3 miles. Even at this, it would make a mighty close and interesting race between either Baby Reliance V or Baby Speed Demon II and the English champion, Maple Leaf IV.

While the cup itself goes to Baby Speed Demon II it was very evident that her sister, Baby Reliance V, was the faster of the two. This latter boat had little trouble in leading the entire fleet over the last twenty-nine miles in the first race, it requiring less than one mile for Baby V to pass Peter Pan VI. But the latter boat, true to her past record, made a game start, being over the line first at the crack of the gun and, in fact, was about the only boat which went out on Wednesday when Lake George was more like the Atlantic Ocean or Long Island Sound after a three days' north-easter. This condition necessitated calling off the races for the day, but Peter Pan VI gave a fine exhibition of what a little 20-footer can withstand in the shape of a sea.

Also in the second race, Baby Reliance V started off at a terrific clip, opening a big gap between the rest of the field before the first turn had been reached, less than two miles from the start. Just at this turn an unfortunate accident occurred which put her out of the running entirely for the rest of the races and probably prevented an even better speed record being established than Baby Speed Demon II was able to make. However, there is no question but that this little boat will be heard from later this season and she may be the world champion yet. The cause of the accident can only be laid to an unfortunate series of circumstances which made it necessary to put aboard a new mechanician in place of the one which had been working with the boat and engine during all the months of trying out. The new engineer was unfamiliar with the little details and when the real test came something let go.

Baby Speed Demon II, the winner of the series, took second place in the first race and first place in the other two races and as the method of scoring allowed each boat a point for finishing and an additional point for each of the boats entered which she defeated, whether they started or not, Baby Demon was therefore credited with a total of 29 points out of a possible 30. This is the same 20-foot hull and power plant which cleaned up everything at Peoria at the Mississippi Valley Regatta early in July, as was told in the August issue of MoTor BoatinG. The history of the motor goes back even further, no one knows exactly how far, as it has been used in an almost countless number of hulls, both experimental and of various names, for the past two or three years. While Baby Demon was able to win easily on the Illinois river against the pick of western boats at a speed of 41.3 miles an hour and often slower, yet on Lake George she had to go 49.6, 50.49 and 47.3 miles an hour respectively in each of the races in order to come home ahead.

Baby Reliance V and Buffalo Enquirer were also 20-foot hulls built by the C. C. Smith Boat & Engine Co., powered with new 8-cylinder Sterling motors and Hyde propellers.

Ankle Deep needs no description as she is as familiar to everyone as though she had crossed the Atlantic. She was the same reliable boat, running on an even keel and affording her owner and engineer as much comfort as any runabout. She was decidedly a favorite with the "natives," and there were many ready to back her with their last cent that she would win. It was not until the last race when she had hit the only log ever seen floating in the lake, which broke her port propeller shaft and drove one blade way through her thin planking that they would admit that their favorite was beaten. The accident threw the Count out into the water, but Engineer Grenon soon had the boat under control and rescued the owner. Count Mankowski reluctantly accepted a tow, probably for the first time in his life, and Ankle Deep was taken back to her house, but not leaking badly in spite of the accident. The cut had been so clean and the blade remained through the planking, which prevented the water from entering.

Hawk Eye, the $10,000 boat built by the syndicate of Lake George men for the purpose of keeping the cup at home, was a big disappointment. Only once did she show any speed and that was during the first half of the first lap in the last race when she seemed to draw away from the field with ease. It was only short lived, however, for a magneto chain let go again and out she went. This one spurt probably was worth thousands of dollars to the Lake George people, for they applauded with all the enthusiasm which they had been saving up for weeks in advance and even after their favorite was passed and after some one in the grand-stand cried, "Wait until next year," they applauded again and showed they had real red blood in their veins. We sincerely hope that the plans will be so arranged that the 1915 race can be handled again by the Lake George Regatta Association for they deserve it.

(The complete details of the races will be found on page 33.)

Nautical Mile Trials at Lake George.

BABY SPEED DEMON II.

Run No.	1	2	3	4	5	6
Time ...	1:19⅘	1:20⅗	1:19⅘	1:20⅗	1:19⅘	1:20⅘

Average speed, admiralty conditions = 44.9205 knots = 51.726 statute miles an hour.

BUFFALO INQUIRER.

Run No.	1	2	3	4	5	6
Time ...	1:23⅗	1:25⅕	1:24⅗	1:24⅘	1:23⅗	1:22⅘

Average speed, admiralty conditions = 42.633 knots = 49.0925 statute miles per hour.

Kex II, a Big 38-Footer.

(*Continued from page 15*)

The bridge deck, or cockpit, is above the engine-room. A wide seat, with high back, extends clear across aft, known locally as "the pew." The three companionways lead from the bridge to the respective compartments.

The unique feature of Kex II is the steering column and control cabinet, which stand in the cockpit. The former is of massive bronze, incorporating the binnacle with a 6-inch Baker compass. The 24-inch yacht's wheel is built of ecle wood, and carries the spark and throttle levers on its face—an unusual arrangement on this type of wheel. Under the glass top of the control cabinet, and running on rolls, are the charts of the entire coastline, from New York to Nova Scotia, which may be passed under the helmsman's eye, protected from wind and water, by the turn of a knob. Opening the door at the starboard end discloses the flags of the International Code, each tucked in its labeled compartment, with the Power Squadron Code Book on a shelf above. The corresponding door to port has shelves for pipes, tobacco, etc. The doors at the front are of plate glass, and cover the switchboard and control board. The former, besides the usual switches, carries a Weston volt-ammeter, McRae circuit breaker, fire alarm gong that operates by a thermostatic contractor in case the carbureter takes fire; a bilge alarm, that rings when the water in the bilge reaches a predetermined height; the gasoline shut-off valve, the tell-tale lights in series with the starboard, port and bow lights. The control board carries the Bosch switch and self-starter lever (for the engine is equipped with a dependable air starter), main air valve, air and water circulation gauges, sight oil circulation glass, barometer, Chelsea clock, tachometer, recording counter and a fire knob—pulling which will break a bottle of Pyrene and douse the carbureter should a fire occur at that point. The whistle valve is under foot, and within reach is the reverse-lever, with positive latch for the neutral position, as is also the lever for throwing in the clutch of the Kellogg 4-cylinder air compressor. On deck also is a standpipe, connected with a power Trimount pump for washing down decks, and also for playing the hose on your friends when they are trying to come aboard.

Thus the steersman can start his engine, and be sure that all functions are being performed, without entering the engine-room.

A ten-gallon oil reservoir is connected by a hand pump to the crankcase, as is also a pump for ejecting the old oil outboard, so that the owner can "tinker" this engine in his white flannels, and oil cans become mere ornaments. Electricity is supplied by a Holtzer Cabot generator and 12-volt Edison battery.

The engine-room is well ventilated by port lights, and by a system of cowl ventilators that insure circulation in rough weather. There are two Janney-Steinmetz gasoline tanks suspended athwartship, aft of the engine, containing 236 gallons, or enough to cruise over 600 miles, and fed to the carbureter by independent lines of seamless tube, strainers, etc. As backfiring, through the carbureter into the bilge, and the possible ignition of explosive vapors is the most prolific source of fire in motor boats, both air intakes are connected to a vertical 4-inch brass pipe that takes air from the ceiling of the engine-room, above any possible stratum of explosive gas, and where the air is warm and dry. The exhaust piping is brass tubing, with a "custom-made" bronze Maxim silencer. The engine-room contains two good bunks, an oilskin locker, and a work-bench, with vise, tool lockers, etc. The motor is a 30 h.p. Sterling, turning a Hyde 28-inch x 32-inch wheel at a maximum of 460 r.p.m.

The saloon is a choice example of comfort and interior decoration and shows the woman's good taste in its harmoniousness, the owner's wife having been an ardent yachtswoman ever since her first cruise in little Kex to Mt. Desert. To a point shoulder-high the woodwork is mahogany, the Pullman berths, showing when closed, figured panels which act as backs to the transom seats. The walls and ceiling are paneled and wainscoted, the frames white, and the panels French gray. Lighting is from a semi-indirect fixture, hung under the skylight, and four wall brackets for reading, with empire shades. The fixtures are of Colonial design, and were made to order to match the locks, knobs and drawer-pulls. Upholstery and port-light curtains are of flowered cretonne, with a soft green Wilton on the floor to harmonize. In the saloon there is a permanent place for the Victrola, china cabinets, lockers, drawers under transoms, table with drop leaves and two large closets.

The toilet is finished entirely in white enamel, even to the Sands plumbing, and contains medicine-closet and linen locker. The galley is forward, has a hatch and ladder to deck, porcelain sink, lots of lockers, a large size ice-chest and a little Speedway alcohol range on which a real meal may be "brewed."

Aft is the owner's stateroom, finished in mahogany and white, containing two 3-foot berths, a bureau, seven drawers, a locker and a berth for a two-year-old progeny with a grill that slides up at night to keep the "animal" from escaping.

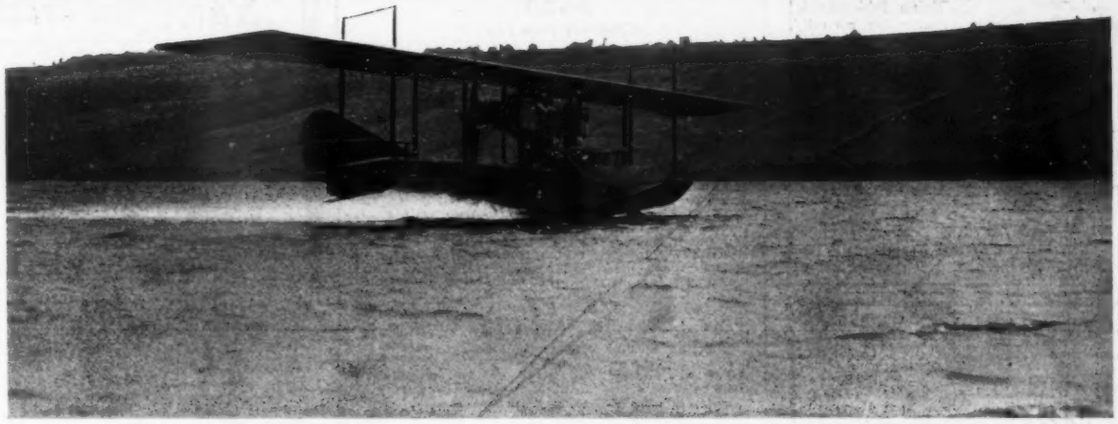
On deck a Providence capstan does great business with an 80-pound anchor, an 11-foot tender is carried outboard that takes about two hours to clear away, and a mast is equipped with auxiliary sails—solely for good moral effect on the motor.

As George Lawley, the yacht builder, said to the owner: "The trouble with that boat is that you have squeezed a 60-footer into 38 feet."

Kex II was designed by the owner, Frank P. Huckins, a member of the Regatta Committee, and an officer of the Power Squadron, of the Boston Yacht Club, who is strictly an amateur, giving his attention to the lumber business when not cleaning spark plugs. He has a young machine shop in his home in Brookline, and put in 968½ hours' time making and installing the accessories previously described.

Kex II was not designed for speed, so that no one is surprised that she makes a forced sped of eight knots and a cruising speed of 7.5.

The builder was Ambrose A. Martin, of East Boston. The dimensions are: Length overall, 38 ft.; length waterline, 35 ft. 11 in.; beam, 10 ft. 6 in.; draft, 4 ft. She has a freeboard forward of 5 ft. 6 in., and aft of 4 ft. 6 in. Her displacement is about 21,000 lbs., and her tonnage is 14.89 gross, and 12 net.



The Rodman Wanamaker Transatlantic Flyer "America", Finished with Valspar Red Enamel.

"Some share of the credit", says the Curtiss Company, "naturally belongs to - - - - -

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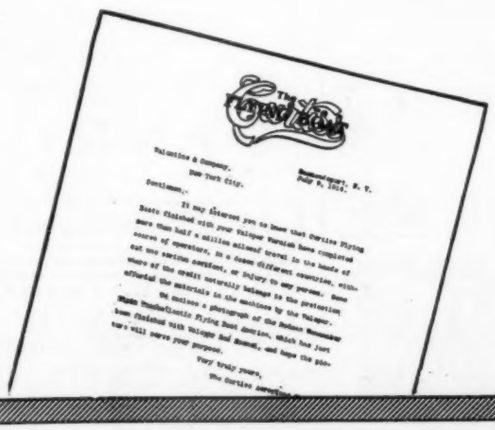
VALSPAR
The Varnish That Won't Turn White

The protective qualities of a varnish have never been subjected to greater tests than on the many Curtiss Flying Boats now in use.

Every one of these machines is varnished with Valspar. Despite the constant exposure to pouring rain, broiling sun, salt air and the water itself, Valspar gave the materials perfect protection.

These boats, in the hands of scores of operators, have recently completed over half a million miles of travel without an injury or serious accident.

So good have been the records of Curtiss Flying Boats that Rodman Wanamaker commissioned this company to build his Flying Boat America—which is now being prepared to cross the Atlantic Ocean. And of course the America is Valsparred.



Valspar is a good varnish *above* the water, where it is exclusively used by the Curtiss Company; and it is equally as good *on* the water, where it is used by thousands of individual boat owners.

Valspar not only gives the full measure of protection, but it is the *only waterproof varnish in the world*—the one varnish that does not turn white in water. Nor does it whiten or cloud when exposed to the salt air or flying spray. Valspar can be washed every day without the least injury to its finish. It is more durable than other varnishes, yet dries dust-free in two hours; hard overnight.

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To be sure of getting a really good bottom paint, specify Valspar Bronze Bottom Paint. It is durable, handsome and antifouling.

Name of nearest dealer on request. A 4-ounce can will be sent on receipt of 10c. in stamps to cover mailing and package. Write for our practical booklet on boat finishing.

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VALENTINE'S VARNISHES

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Weather and the M. B. Man.

(*Continued from page 9*)

work are for the most part intricate pieces of mechanism, which have been brought to a high degree of perfection. The amateur fashions a wind vane from a fish-shaped piece of wood by piercing it with a bolt and fastening it aloft. But the Weather Bureau builds its anemoscope, as it is called, of light metal and thin strips of wood, supports it on a system of three rollers which revolve with the minimum of friction, balances it with extreme nicety, and produces altogether an instrument which records the direction of the wind with the utmost accuracy. In order to make a record of the movements of the vane, the revolving shaft is fitted with four cams, corresponding to the compass positions, N., E., S. and W., which make contact with four insulated springs electrically connected to the recording instrument in the observer's office. When the wind blows from the north, for instance, the vane turns and brings the "North" cam into contact with its particular springs, causing the proper wind direction to be registered. As the adjacent cams overlap slightly, the intercardinal points are also registered, by closing the circuit through *two* of the springs, making it possible to record NE., SW., etc., winds.

The anemometer, consisting of four cups fastened to steel arms, which are secured to a vertical spindle, is used to record as nearly as possible the velocity or force of the wind. The cups and the rest of the mechanism, which revolves as the wind is trapped in the cups, are made as slight as they can be and still remain intact under the force of a wind, but there must, naturally, be some weight to them, and therefore, it is impossible for them to move as fast as the wind does. nertia, friction, momentum (the last factor when the wind is gusty), all have had to be considered in the design of the anemometer, and allowances have, therefore, had to be made for all these factors to permit of accuracy in the recorded wind velocities. The recording mechanism consists of a series of worm gears and dials having different numbers of teeth which move at a certain ratio to each other, and cause an electrical apparatus to register on a moving cylinder, the correct velocity of the wind in miles per hour.

The rain gauge, shown at the top of page 9 in the foreground of the picture, is known as the tipping bucket type. This gauge is simple in construction, with an opening in the top for the admission of the rain, tapering down into a small hole directly underneath which is a small tipping bucket which, on being filled, shows a general precipitation of one-hundredth of an inch. The bucket is so shaped that it tips the instant it is full, thereby closing an electrical circuit which sends its message to the mechanical recorder, and the bucket having emptied itself, it resumes its normal position. Other types of rain gauges register the precipitation by delicately adjusted scales.

In addition to these instruments the Weather Bureau employs whirling psychrometers for recording the relative humidity of the atmosphere, sunshine recorders, snow stakes, as well, of course, as the more familiar barometers and thermometers. The meterorograph, shown in the center of page 000, is not used in making daily observations, but is employed to ascertain the weather conditions in the upper air, being sent up by kite and combining in one instrument the functions of the barograph, thermograph and anemograph. Similar to the meterorograph is the triple register which records the messages electrically transmitted by the anemometer, the barometer, the thermometer, the psychrometer, the wind vane (to get away from long words and give it its common name), and the rain and sunshine recorders. This register is composed of cylinders, inked pens, clockwork, actuating mechanism and the necessary electrical connections, and combines in one instrument the various apparati necessary to write out on paper the complete record of the day's meteorological doings, with the exception of snowfall, which is automatically recorded by a special register of its own attached to the scales referred to in the preceding paragraph.

The Cape Cod Canal.

(*Continued from page 13*)

terprise which built the canal, a toll will be charged to motor boats for passage, according to the length or tonnage of the boat. It contains no locks, being entirely constructed at sea level, but on account of the difference in the amount of rise and fall of tide in Wareham's River, Buzzards Bay, where there is a mean rise and fall of the tide of 4.1 feet and at Sandwich, near the northeastern end of the canal where there is a mean change of 9.4 feet, there is considerable current running through at times which will be objectionable to some craft and may make it necessary to put in one or more locks.

The data in regard to the lengths of the different routes via the canal, etc., follows:

Route Boston to New York—	
Via canal, sea route	279 miles
Via canal, sound route	260 miles
Sound Route via Pollock Rip	326 miles
Sound Route via Nantucket Light	402 miles
Breakwater Cape Cod Bay to Boston	55 miles
Length Shore to Shore	8 miles
Length to 30 feet in either bay	13 miles
Minimum depth	25 feet
Minimum width of bottom	100 feet
Width of bottom of approaches	250 and 300 feet
Width of bottom of passing place	200 feet
Length of Breakwater	3,000 feet
Craft rounding Cape per annum	25,000

EASTERN STAR

"Cleaning Them Up" on the Hudson with a Loew-Victor Engine

This family runabout has been the sensation on the Hudson River this year, and won the 1914 race from New York to Albany in record time. Read what the delighted owner says about

Loew-Victor Model 13

Dear Mr. Rost:

You no doubt are aware of the fact that on June 27th my boat, the "Eastern Star," broke the record for the 270 mile course from New York to Albany and return. We completed the course in 18 hours, 44 minutes and 25 seconds.

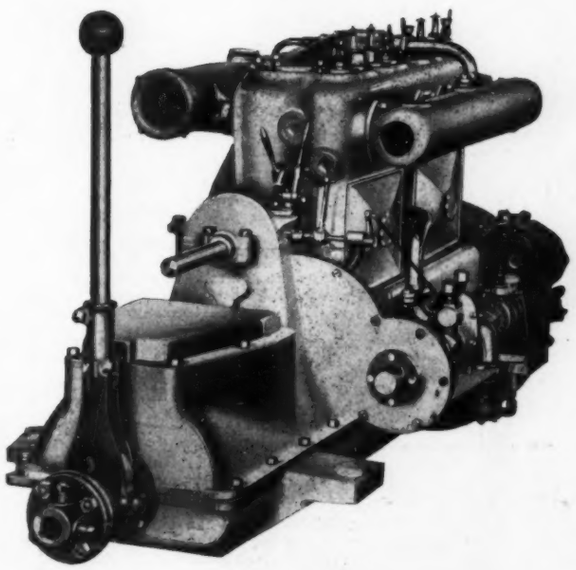
We covered the first half of the course from New York to Albany—135 miles—in 8 hours and 31 minutes, which makes an average speed of 15.3 miles per hour. On the return trip we were obliged to reduce our speed considerably on account of darkness and drift wood.

With the propeller that I have on the boat at present a 20 by 22 3-blade "Ailsa Craig" style, turning at top speed 1050 R. P. M. I can average 18 miles per hour.

However, at no time during the race, did we turn more than 900 R. P. M., in fact we averaged about 875. As we were not being pushed hard we stopped the engine at Albany and gave it fifteen minutes rest. At no other time during the run did we stop the engine or encounter the least trouble, not even a miss.

Inasmuch as my boat is 30 ft. by 6 ft. 3 inches, drawing 10½ inches, I consider the results I obtained on this run as remarkable.

Sincerely,
(Signed) E. L. FINCH.



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$10 ***First cost the only cost***

Multiplies Power
Cuts Down Fuel Cost

Every drop of fuel yields the utmost power through the complete vaporization effected by the

CARTER CARBURETOR

(MULTIPLE-JET)

And not only is the vaporization complete in the Carter but the fuel supply is automatically proportioned to the engine's *actual* needs—not an atom of potential energy is wasted.

We guarantee every Carter user greater economy in fuel consumption, irrespective of what his present carburetor equipment may be.

Write for Catalog and particulars of Our 30-Day Free Trial Offer.

EVERY motor boat accessory sold in connection with this emblem not only entitles the user to the benefits of Johns-Manville Service in every important city of North America, but is a proven product backed by the Johns-Manville Guarantee. And this guarantee can only be construed to mean one thing, that the purchaser must be satisfied.

Spark Plug Troubles are Curable

They don't even exist with a good plug such as the

J-M (Mezger) Soot-Proof SPARK PLUG

Soot has no chance with its double-chamber construction. The soot is blown out before it has had time to get settled. And this plug is gas-tight—no lost compression and lost power.

Efficient and durable. Outlasts the ordinary spark plug two and three times.

As a matter of economy insist on the "J-M (Mezger) Soot-Proof. To insure getting the GENUINE, look for the OPEN END. **Price $1.00.**

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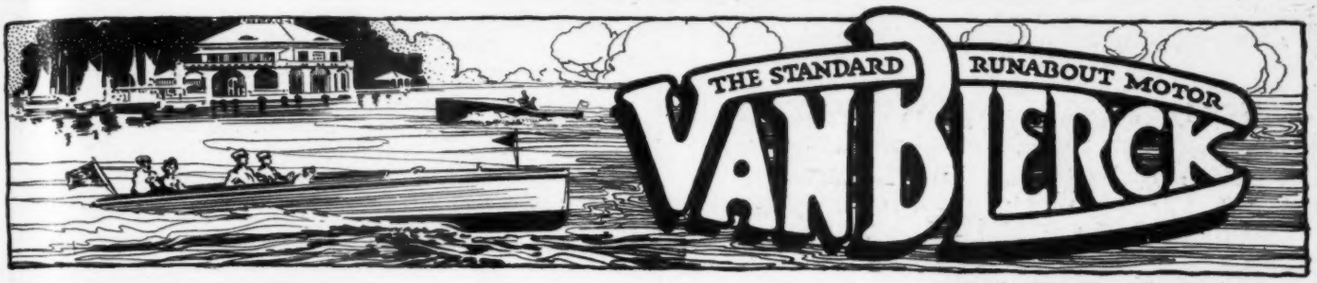


"THE STANDARD RUNABOUT MOTOR"

VAN BLERCK Sales in 1914 Show 100% Increase Over Previous Season

The rapidly growing popularity of VAN BLERCK Motors, as evidenced by the above record, together with the "specialized" or "one type" manufacturing policy adopted by this company, justifies the slogan, "STANDARD RUNABOUT MOTORS."

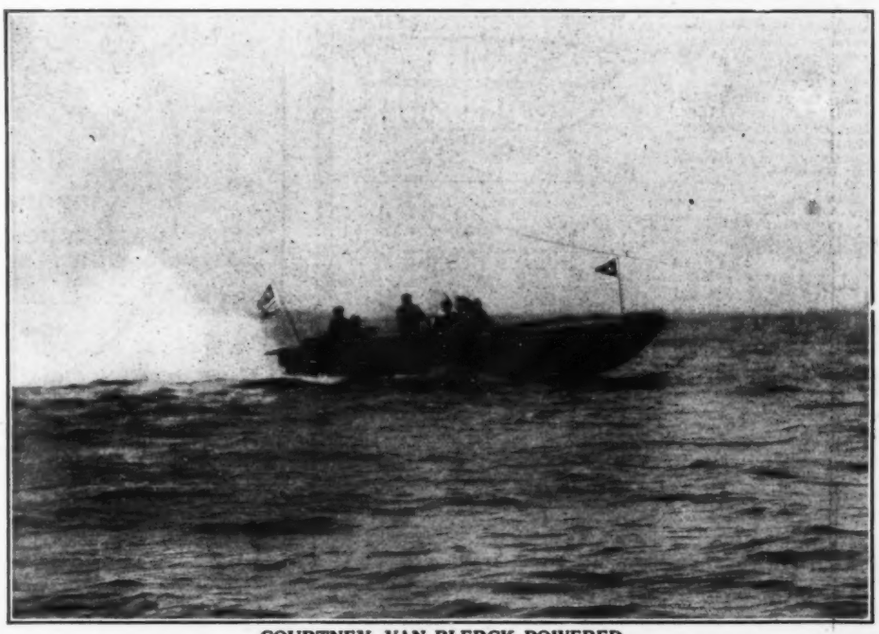
During the present season we have built and sold more high-powered engines for runabouts and express cruisers—the type specialized by us—than any other engine manufacturer.

The "Greater Value" resulting from a specialized manufacturing policy has won and held the favor of naval architects, builders and owners alike. They know that the specialized product is vastly more efficient and economical than that of the general or diversified line manufacturer. In proof of these statements we submit the public fact that the most notable boats of the season of 1914, as well as for many years back, have been Van Blerck powered.

The approval of the trade has taken such definite form as to warrant us in making contracts for materials for our 1915 manufacturing schedule *three times greater than during the present year.*

Our 1915 SALES PLAN will be ready October 1st. It is unique, liberal and stable.

Do not make contracts until you have received it. Send for Catalog and Racing Review.



COURTNEY, VAN BLERCK POWERED

This is the remarkable 26-foot Hydroplane Mr. Chapman wrote about in the August MoToR BoatinG. She is equipped with two 100 H. P. Van Blerck, high-speed motors, and is capable of 45 miles an hour.

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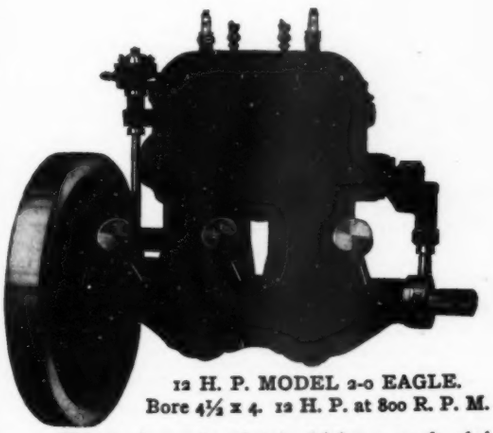
Let Us Reason Together
QUALITY—SERVICE—PRICE

are the three important factors which have created our Marine Engine Business

When you recommend and sell a customer a Marine Engine and it exceeds all expectations, you have succeeded in attaching to your business a permanent customer—one that will talk and drive additional business your way.



12 H. P. MODEL 2-0 EAGLE.
Bore 4½ x 4. 12 H. P. at 800 R. P. M.

This is the engine that is driving a 14 ft. sled hydroplane at 24½ miles per hour, turning a 3 blade 14 x 25 pitch Atlantic propeller at 1285 R. P. M. This same engine will turn a 3 blade 18 in. x 22 pitch Hyde propeller at 830 R. P. M. It's the most powerful two cycle engine ever designed for its stroke and bore and weighs only 250 pounds. Price $160.00.

A reason why "EAGLE" distributors are the best engine agents in this and foreign countries is due to the permanent business they have created by pushing and handling consistently, quality engines only.

You will find these successful distributors and agents selling "EAGLE" Engines from year to year, due to the excellence of the product and the exceptional service we render to them through our big line and properly financed organization.

"EAGLE" Engines are the money-earning kind, they are the kind that put life into your business, the kind that make your business, the kind that make far more easy sales, the kind Mr. Live Dealer that you hould investigate and promote.

"EAGLE" Engines are the last word in two cycle Engine construction. They have the following advantages over all other makes of the same rated horse power: **less weight, more power, more compact, superior construction** and **most important, they cost no more than those that do not have these advantages.** Complete line of **High Speed, Medium Speed** and **Extra Heavy Duty Marine Engines.**

18 separate and distinct models. The largest line of two cycle engines ever offered by a single manufacturer. Handsome illustrated catalogue sent free upon request.

The Standard Co.

Torrington, Conn., U. S. A.

Bore, 4-inch; Stroke, 4-inch; R. P. M. 800-1200; Aluminum Base and Fuel Manifold; Weight, 195 lbs.

EQUIPMENT INCLUDES:

All necessary fittings; bronze rotary pump driven by steel spur gears covered with case; two floating ball type, Kingston float feed carburetors fitted with new fuel and throttle control lever, elevated reversing timer and gear; Kingston mica spark plugs, switch, flange coupling, ball thrust bearing, grease cups, gasoline strainer, wrench, oil gun, can of oil, screwdriver, lag screws and book of instructions.

This is **A SENSATIONAL MOTOR**

At a Sensational Price

Powerful, speedy, smooth running. Extremely economical in fuel consumption. Easy to start and operate. Simple construction.

Equipped with patented Double Fuel Inlet Port System, exclusively a Vim feature—the real reason why

Vim Motors develop from 20% to 30% more power than other engines of same bore and stroke.

One carburetor can be closed off entirely for ordinary running. Then by simply throwing open the throttle, you instantly have the full power of the motor. For emergencies, or where you want to "put one over," this is a great feature.

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Rear boat, handicapped, wins race with Waterman Motor.

A Waterman Model B-4, 24 H.P.

drove the 17 foot "Impudence Jr." to victory at late St. Augustine races, winning cup from 8 cylinder, 200 H. P. 26 footers in 15 knot handicap, repeating last year's success.

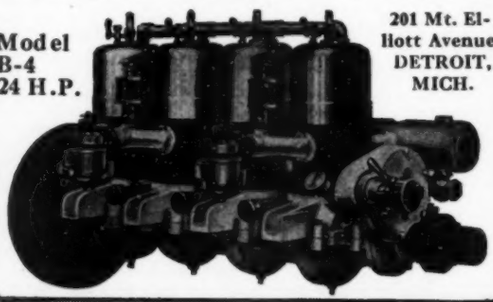
Model B-4, shown below, is light weight, racy, clean cut, and dependable to the limit.

Doubled factory facilities and increased output have reduced the price of Models B-2 and B-4, 25%.

Postal brings free book, quoting attractive prices on full line.

WATERMAN MARINE MOTOR CO.

Model B-4 24 H.P.



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Joe's Duplex Drive

Quadruple Gearing

HEAVY DUTY REVERSE GEAR

Send for 1914 Catalogue.

The only heavy duty gear on the market that has same speed ahead and astern, that does not depend on locked gear teeth for the forward drive.

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Manufacturers of Heavy Duty and High Speed Reversing Gears, One Way Clutches, Rear Starters, etc.

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The MAXIM SILENCER FOR MOTOR BOATS

IS "WITHIN THE LAW"

More and more attention is being paid to the motor boat racket nuisance. The man who permits a noisy exhaust takes a chance with the law. Formerly cutting out noise meant cutting down speed, but now there's a way out. Equip with the Maxim Motor Boat Silencer.

THE MAXIM SILENCER INCREASES ENGINE EFFICIENCY ABSOLUTELY NO BACK PRESSURE

Instead of the gases being obstructed, they are whirled, and gradually pass out noiselessly. Write for descriptive literature. Mention diameter and number of cylinders and also size of exhaust outlet.

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The Motor the Life Savers Use

MOTOR BOATING

Safety First

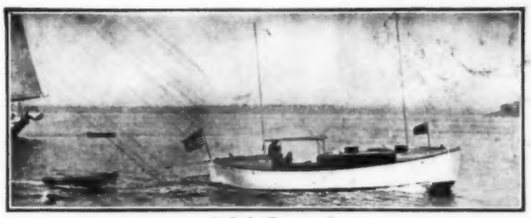
The Holmes McLellan Life Boat Cruiser

Non-Sinkable **Self-Righting**

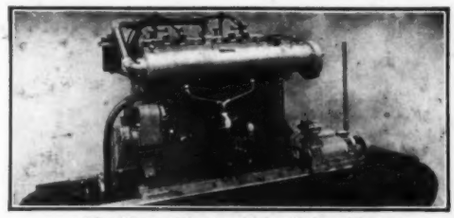
Equipped with 20-25 H. P., 4 Cylinder

Holmes "Get-At-Able" Motor

Is a Combination Life Boat



A Safe Boat



The Motor Was Built for Safety First

Refuses to be Capsized

Corks Up Like a Bottle

The Holmes Motor Co., Inc. West Mystic, Conn., Boston Office: 50 State Street

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"SANDS" MARINE SANITARY FIXTURES

THREE RELIABLE PUMP WATER CLOSETS OF WORLD WIDE POPULARITY THAT HAVE "MADE GOOD." Famous for their Faultless Construction and Remarkable Service, They are Guaranteed Without Reserve. Immediate Shipment from Stock.

THE "BOW" CLOSET, PLATE S-2050

(Design Patent Applied For.)

The "Bow" Closet, Vitro-Adamant Bowl, 2½-in. pump, located at rear, fitted with swing handle. Quick opening supply valve. Space occupied, 15 x 24 in.

Pump rough, with finished trimmings, oak seat, N. P. Hinges **$30.00**

Dimensions: Front to back 23 in., width 14 in., height 12 inches.

Net weight, 35 lbs. Shipping, 70 lbs.

PLATE S-126.

The "Glenora" Composition Flange and Coupling for use on supply and discharge pipe of closets, straight or bent coupling.

¾ in...	**$2.25**
1 in...	**3.00**
1½ in...	**5.25**
2 in...	**8.00**

Composition raised strainers 25c extra.

"KNOCKABOUT," PLATE S-34.

The "Knockabout" Improved Pump Water Closet, 2½-inch supply and waste pump, round flushing rim bowl, composition foot valve, hinges. Pump rough, finished trimmings, oak seat and cover **$52.50**

If mahogany seat and cover add **1.50**

Dimensions: Front to back, 14 in.; width, 18 in.; height, 14 in.

Weight, net, 45 lbs. Shipping, 75 lbs.

PLATE S-2062.

The "Anglo" Composition flanged Sea Valves, with straight couplings and locking plate, for use on the supply and discharge of small pump closets.

Price per pair with strainer for supply **$6.00**

We recommend screwed or lead joints when installing any fixture on a boat as a sanitary protection to health.

"WINNER," PLATE S-2061.

(Patented Copyrighted)

The "Winner" Pump Water Closet, Vitro-Adamant Round Hopper Bowl, oak seat, N. P. brass hinges, 2½ inch supply and waste pump, "Sands" Special quick opening supply valve.

Plate S-2060 Fixture as described with oak seat.... **$19.00**

Plate S-2061 Fixture as shown with oak seat and cover **$20.00**

Dimensions: Front to back, 17 in.; width, 16 in.; height, 14 in.

Weight, net, 35 lbs. Shipping, 50 lbs.

PLATE S-750-A.

PLATE S-750-A

New Style Double Acting Bilge Pump, with discharge and suction hose.

No. 1—Chamber 1⅜ in. diam., 15 in. long $5.00

No. 2—Chamber 1½ in. diam., 15 in. long $6.50

No. 3—Chamber 2 in. diam., 24 in. long $14.00

PLATE 130-¾B

All Cast Bronze Round Raised Strainer.

No. 1, 2½" diam., each .....$ .35

No. 2, 3 " diam., each ..... .50

No. 3, 4 " diam., each ..... .65

No. 4, 5 " diam., each 1.00

No. 5, 6 " diam., each 1.50

PLATE S-3190.

The "Monè" 12-inch Vitro-Adamant Corner Lavatory with N. P. Basin Pump with Low Down Spout, N. P. Waste Plug, Chain Rubber Stopper and Cock Hole Chain Stay. With full "S" 1¼" N. P. trop.

Price **$24.50**

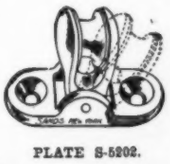


PLATE S-5202.

Universal Polished Brass Rope Lead, Swing joint permits different angles of Pulley—prevents binding of rope. Polished Brass .....$ .35

PLATE S-750.

Double Acting Brass Auto Bilge Pump, 15 inches long under spout and fitted with 5 feet of rubber hose.

No. 1—Chamber 1¼-in. diam.....$3.00

No. 2—Chamber 1½-in. diam.....$4.50

No. 3—Chamber 1¾-in. diameter, 24 in. long, with foot rest $5.50

PLATE S-750

Complete line of closets, lavatories, port lights, deck plates, pumps and motor boat accessories described in Catalogue "R" sent upon request.

A. B. SANDS & SON COMPANY

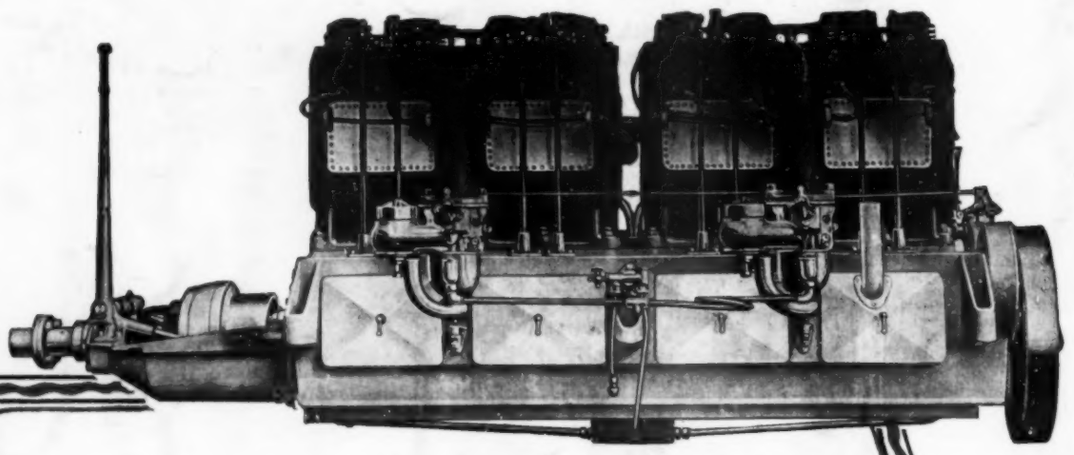
Largest Manufacturers in the World.

MARINE PLUMBING SPECIALTIES

22-24 Vesey St., NEW YORK, U. S. A.

1849--"SIXTY-FIVE YEARS OF QUALITY"--1914

The Gold Challenge Cup Races



The eight-cylinder, stock model, 180 H.P. STERLING that drove the winner of the Gold Cup

FIRST! SECOND!! THIRD!!!

That is the way the Sterling powered boats finished in all the three races for the Gold Cup held on Lake George July 30th and 31st, winning this classic event by sheer consistency, by their inbuilt capacity to go and keep on going, by the sturdy construction of both boat and engine and by the skill and nerve of the drivers and mechanicians.

BABY SPEED DEMON II, the winner of both the Gold Cup and the Mile Trials, was a wonderful demonstrator of what has been accomplished by both boat and engine builder. Despite the fact that the first two races for this Gold Cup were run at the rate of over 50.4 M.P.H. for a 30 nautical mile course, this boat ran three races and the mile trials without a hitch, and is ready to go through it again and do the same thing.

At St. Augustine, Fla., at New York, at Philadelphia, at Montreal, at St. Andrews, Que., at Peoria, Ill.—and now at Lake George, N. Y.—Sterling powered boats have beaten every competitor, several of them having power plants of a much greater rated horsepower. They have won these races because of the absolute reliability of their power plants, because of their ability to run hour after hour at terrific, record-making speeds.

Can there be any further doubt in your mind that the Sterling engine is the ONE engine that can be relied upon absolutely, no matter what the requirements may be? Why experiment when you can purchase a Sterling engine exactly suited to your requirements and backed by the Sterling Guarantee and the Sterling Reputation?

Results, not claims, are back of the STERLING engine. In every type of boat, in every kind of service, the STERLING can show a record of successful performance which marks it as the most conservative investment in the marine engine field.

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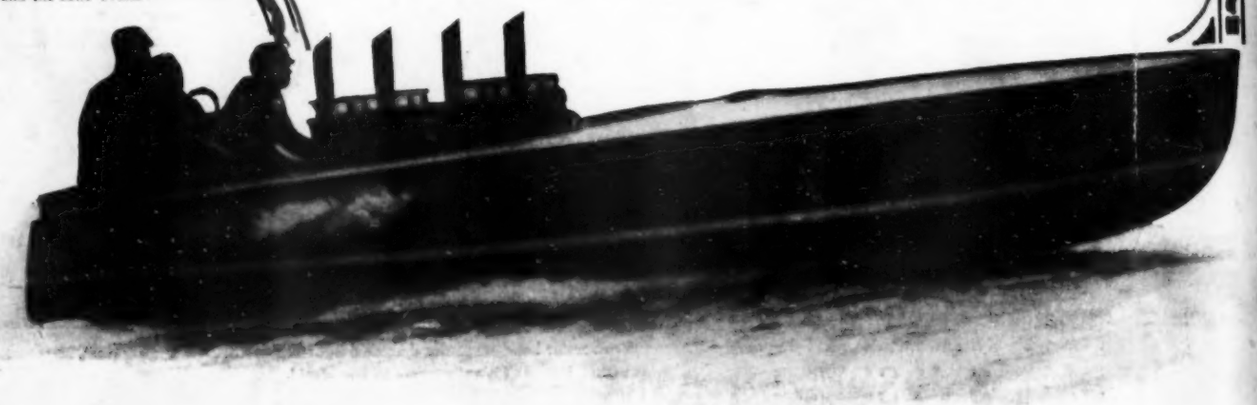
The Sterling Engine Co.

1254 Niagara St. Buffalo. N.Y.

The 20-foot speed marvel, "Baby Speed Demon II," built by C. C. Smith Boat & Engine Co. for Mrs. Paula H. Blackton; winner of the Gold Cup and the Mile Trials



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